Report of

The Maryland Agricultural Society—
The Maryland Farm Bureau, Inc.

INCLUDING REPORTS OF THE

Maryland State Horticultural Society,
Maryland Crop Improvement Association,
Maryland State Beekeepers' Association,
Maryland Vegetable Growers' Association,
Maryland Stockmen's Association,
Maryland Tobacco Growers' Association,
Maryland State Poultry Council,
Associated Women of the
Maryland Farm Bureau,
4-H Club Conference.

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REPORT OF THE

MARYLAND AGRICULTURAL SOCIETY

THE

MARYLAND FARM BUREAU, Inc.

Including Reports of

The Maryland State Horticultural Society
The Maryland Crop Improvement Association
The Maryland State Beekeepers' Association
The Maryland Vegetable Growers' Association
The Maryland Stockmen's Association
The Maryland Tobacco Growers' Association
Maryland State Poultry Council
Associated Women of the Maryland Farm Bureau
4-H Club Conference

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BALTIMORE, MD.

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LETTER OF TRANSMITTAL

To His Excellency, Herbert R. O'Conor,
Governor of Maryland.

Sir:

I herewith submit to you, as directed by the Act incorporating the Maryland Agricultural Society, and also the Horticultural Society, this report for the year 1940, which contains a detailed statement of the receipts and expenditures of the Society as approved by the Executive Committee and Advisory Council. It contains the proceedings of the Twenty-fourth Annual Meeting of the Maryland Agricultural Society, Maryland Farm Bureau, Inc., and annual meetings of the Affiliated Associations.

I trust that an inspection of its contents will convince you that the funds appropriated for this purpose have been wisely and judiciously expended.

Respectfully submitted,

CHARLES E. WISE, JR.,
Secretary.

March, 1941.
Baltimore, Md.

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REPORT
OF THE
TWENTY-FIFTH ANNUAL MEETING
OF THE
Maryland Agricultural Society
Maryland Farm Bureau, Inc.

January 16 and 17, 1941

MORNING SESSION

MR. P. C. TURNER, President: I hereby declare the meeting of the 25th Annual Convention of the Maryland Farm Bureau, Inc., now open. It gives me great pleasure at this time to introduce our presiding officer at this meeting. He is a man who has served his County as President for fifteen years, and has been ever ready and willing as Director of the Farm Bureau to give us his advice, which is always good. I consider him one of our best members, Mr. R. C. F. Weagly.

MR. WEAGLY: I will ask you to stand while Mr. Fred Jones, of Harford County, offers the invocation.

MR. JONES: Lord, be with us this morning in our deliberations. Help us to understand the things we are trying to do. Give us strength and health so that we can carry out the duties that have devolved upon us. We ask it all in the name of our Saviour, Jesus Christ. Amen.

MR. WEAGLY: When notice of this meeting and the outline of this program were shown to me and I found that I was to preside at this morning's session, I made a little bargain with myself that I would be very careful of the type of language I would use when I was speaking to the group, and that I would not tell any stories. The reason I will not tell any stories is that I will hear a story and I may tell it over some four or five times before I really see the point. So, with that in mind, I am going to refrain from telling any story. It is not my duty to take up the time, but to present the people who will talk to you. I am sure our first speaker on the program is so well known he needs no introduction. We look upon him as our leader, our President. It was just last Sunday that our minister used an illustration about how sheep will follow a good leader. You can do almost anything with them if you have a good leader. I thought that was like some people. If they have a good leader they will follow, but it is pretty hard to drive them. With that in mind, I know you will enjoy hearing our President's annual address. I present at this time our State President, Mr. P. C. Turner.

PRESIDENT'S ANNUAL ADDRESS

P. C. TURNER, President.

Another year is ended and I know it is a satisfaction to all that our goal of 5,000 Farm Bureau members for 1940 was exceeded.

In taking stock of our assets at the start of this new year, it is gratifying to know our finances are in good condition. Our prestige was never better. With Ed Wise as Secretary, Wilbert Smith and Martin Sutton as field men, Miss Dressel and Miss Meyers in the state office, we have a trained personnel that with each year's added experience our organization work is getting better and better. We have in each County in the State a real, live County Farm Bureau, with splendid officers that are all cooperating to the utmost with our state office. Harry Nuttle as National Committeeman, is ever ready with sage advice when we need it; year by year the associated women under the fine leadership of Mrs. Edwin Fry are proving to us men how handicapped we would be without them. It is a pleasure to us all that Mrs. Roy Weagly was deservedly promoted to the Vice-Presidency of the associated women of the American Farm Bureau. We value the fine cooperation we get from the University of Maryland. From Dr. Byrd, Dr. Symons, Miss Keller, all the staff and every one in the extension service, it is the same story of cooperation. The unity of purpose between our organization and Roy Brookes of the Grange is everything to be desired. It is this wonderful unity of all these groups interested in agriculture in the whole State of Maryland that makes us optimistic as we face the uncertain future that lies ahead, and that enabled us to so successfully play host to the great National Farm Bureau convention here in Baltimore last month. That our hospitality and entertainment were very much appreciated by our visitors was attested in person and by appreciative letters from many States.

This was an off legislative year. In the 1939 legislative session three things were accomplished that had long been our goal; namely, a balanced budget, restoration of gas tax for road purposes and the establishment of a state income tax.

The 1941 General Assembly is now in session, our legislative program is limited. We must ever be on guard to protect the principles established and guard agriculture against any discriminating acts that may be attempted.

The Grange-Farm Bureau tax committee has been active and has assembled a mass of enlightening information on all tax subjects. We must study the proposed bill to revise the tax collection and assessment laws and protect the principle of home rule in the Counties.

We must endeavor to get adequate appropriations to maintain the agricultural departments and extension forces at the University of Maryland. In conformity with the resolutions of both our National and State Farm Bureaus, we must oppose the transfer of Forestry and Geology from the Department of Agriculture in both State and Nation.

I appeared before the Governor's conservation committee to voice our stand against such transfer. We will continue our efforts to solve the deplorable congestion in the Baltimore wholesale fruit and vegetable markets.

We congratulate Governor Herbert O'Conor on the healthy financial condition of the State, and above all for his courage in pointing the way to eliminate the state bonded debt and the state real estate levy in a decade; this would bring to pass one of Farm Bureau's long-cherished dreams.

We must oppose all efforts to impose minimum wage and hour law on agriculture until such a time as parity or economic balance is achieved. We are alarmed at the steady drain of farm labor to war industries at exorbitant wages. At my request, Dr. Byrd is having the economic department of the University of Maryland make a survey on the farm labor situation in the State and I assure you this matter of farm labor shortage will be put before the State Council for Defense, of which I am a member.

We should encourage the growth of self help through an expansion of cooperative buying and selling agencies.

We must back our National Farm Bureau in its efforts to get parity for agriculture.

We are a non-political organization, but I am in agremeent with our National President Ed O'Neal that our members in the Counties should be informed as to the voting record by our legislative representatives on agricultural bills at both Washington and Annapolis and I approve furnishing that information.

The aftermath of the last World War was the cradle in which our Farm Bureau was born. We have grown in both numbers and experience. We have developed leaders in both State and Nation that we can class as statesmen. We saw many of them in action during the recent national convention. So organized and with such leadership we face the uncertain future ahead of us. The dogs of war are again unleashed; Christianity, Civilization and Democracy are threatened with extermination. Total war must be met with total defense. Total defense means national unity; of the farmers' contribution toward that unity I am sure, because I have mingled with farmers from all over Maryland and I know all feel in their hearts "whatever the future holds for me, I am glad I am a farmer; I am glad I am a Marylander; I am glad I am an American; I am glad to belong to that group of God-fearing men and women of the soil who will tolerate no fifth column, no sabotage and no appeasement, but, with heads held high, ever looking forward, will do their part in the fields, in the factory and, if necessary, bear arms to uphold and preserve this democracy, the cradle of liberty, bequeathed to us as a sacred trust by our founding fathers." Let us all pray that the Prince of Peace will come into his own and deliver the world from chaos.

MR. WEAGLY: The next gentleman is not going to make an address. He is going to make a report, and I feel that the members of the Farm Bureau look upon Ed Wise the same way as people on a ship. He is the pilot of the Maryland Farm Bureau, and it is through his pilotship the last two years that the Maryland Farm Bureau has increased its activities, its membership, its finances. It is indeed a pleasure for me to present our Secretary, Ed Wise.

SECRETARY'S ANNUAL REPORT FOR 1940

C. E. WISE, JR., Secretary-Treasurer.

The year 1940 has been the brightest one in the life of the Maryland Farm Bureau, although our nation has passed through one of the darkest periods in its history. Our members will long remember 1940 for the National Convention in Baltimore.

As citizens, they will recall the past year for the invasion of Norway, the conquest of the lowlands, the collapse of France and the valiant stand of Great Britain. Every defeat suffered by the democracies of Europe had an impact on business in the United States. Nations were falling, great peoples were losing their liberty, and the entire world was threatened with drastic change from freedom and security to force and insecurity in national affairs.

The darker the clouds grew in Europe, the brighter the skies seemed in America. Democracy has become dearer, loyalty stronger, and the need for organization clearer.

Democratic organizations within a democracy are needed for the proper functioning of government to insure the rights of all. Free and unhampered discussion is essential in any democratic institution. Full discussion of a question leads to better information and develops an understanding that results in an intelligent decision.

For the past three years Maryland Farm Bureau members have met in small groups in their neighbors' homes to discuss problems of the individual, the locality, the states and the nation. During 1940 over eighty of these Farm Bureau Planning groups have met regularly. The 1,600 members who have talked over their problems have developed themselves, strengthened democracy, and improved the Farm Bureau organization. The number of these groups should be doubled in 1941. This will not only be a help to the individuals and the organization, but a definite part of the national defense program.

Progress made in 1940 is the result of programs like this carried on over a period of years. Many small gains, when added together, make an impressive total. For fifteen years the joint tax committee of the Farm Bureau and Grange studied the state system and made recommendations for income and luxury taxes. In 1935 additional luxury taxes were enacted; in 1937 an income tax of ½ of 1% passed, and in 1939, a 2½% income tax became a major part of this state revenue system. Each year recommendations were made to reduce the state real estate levy. Governor O'Conor in the 1942-43 budget has adopted these sug-

gestions, cutting 1.35c from the levy in 1942 and 1.0c in 1943. This is a start in the right direction and will mean a saving of $1.35 next year and $2.35 the following on each tax assessment of $10,000. If this program is continued, the state real estate levy will be eliminated entirely. The income tax of 1939 is to be amended in the 1941 session to improve the basis, clarify the terms and reduce the payments. Farm Bureau should support this move to insure the fairness of the tax and continue it as a basic source of state revenue. We should fight for further reduction and final elimination of the state real estate levy.

Our organization is the only one that sponsors and promotes a tax program. We do this to secure an equitable tax system and insure funds for the proper operation of the state government in all its functions. Agriculture needs a research department and a means of instructing farmers in the methods of combating diseases and pests, and in the operation of their farms. The state and national governments cooperate in supplying this service. Farm Bureau works to secure appropriations from the National Congress and the State Legislature. A committee of 15, headed by President Turner, conferred with Governor O'Conor on the University of Maryland budget for 1942-43. Emphasis was placed on agricultural funds with special stress on the return of former cuts. Restoration of these would enable the return of the salary reductions to county agents, extension -workers and other university personnel. The state budget as presented by the Governor included an increase of $129,000. for the University of Maryland. The legislature can reduce but not increase the budget appropriations, so additional funds will be asked for when the supplemental budget is being prepared. Farm Bureau should strive for ample funds to carry on all essential agricultural work. This is necessary to give service to farmers and insure that all measures necessary in efficient farming are carried out effectively.

Two hearings were attended and a radio talk delivered by the secretary in opposition to daylight saving in Baltimore. Daylight saving time has been constantly opposed by farmers as it makes a long day longer and places a definite hardship on them. The proposal was defeated in the Baltimore City Council and lost in the referendum at the general election.

The Baltimore truck market committee has been represented at all meetings of the Northeast vegetable and potato council. This group has secured a full-time man on marketing at the New York market. Maryland has asked for a similar man on the Baltimore market. Funds for this were included in the University of Maryland Budget as presented. This committee appeared before the legislative council, presented the market situation and asked legislative help to correct it. Legislation to provide for a market authority to study the problem and funds for its correction should be sponsored by the Maryland Farm Bureau.

In May a series of tobacco meetings attended by 2,500 farmers was arranged and conducted by the state officers. The purpose of these meetings was to give unbiased information on marketing tobacco and insure continuation of the Baltimore market. Later, a meeting was held with

the Governor to request him to appoint a committee for study of tobacco marketing in the state. This committee has been appointed.

Farm Bureau Cooperative Services, Inc., was organized during the year. Officers elected were:—H. H. Nuttle, President; Howard Leaverton, Vice-President; C. E. Wise, Jr., Secretary; Martin L. Sutton, Asst. Secretary. An auditing and management service for local cooperatives has been established under it. This is a step to fill a long-felt need that will do much to improve the efficiency of county cooperatives.

A consumers' cooperative committee was appointed in June. Its chairman, Mr. Sattler, has been active in securing information to guide us in planning a more extensive program. In October six representatives from the state attended the meeting of the Cooperative League in Chicago. These were sent by the Farm Bureau Mutual Auto Insurance Co. as part of its program to encourage the development of cooperatives.

Insurance sales have increased over 20% during 1940 and the Maryland Farm Bureau Wool Pool increased its tonnage by 10% over 1939.

More than 140 persons went on the New York World's Fair tour conducted by the Farm Bureau.

Maryland was host to the 4,000 farmers who attended the annual meeting of the American Farm Bureau Federation December 9th to 12th. This is an honor. It is a recognition of the progress made here during the past several years. Baltimore is only the fifth city outside of Chicago to entertain the National organization. A National Convention committee of twenty started work in August to plan our state's part as host. Later, this group was enlarged to nearly 100. Everyone cooperated wholeheartedly and a comprehensive program of entertainment resulted. Those attending expressed their appreciation. Many others have written letters commending the Maryland Farm Bureau for the hospitality shown to National visitors. The results were most gratifying and prove what our organization can do.

The progress we have made is due to teamwork beginning with the office staff, then the fieldmen—Martin Sutton and Wilbert Smith, and extending to the counties, their officers and directors. County agents, home demonstration agents, all other university workers have been most helpful. President Turner has given his time and energy to Farm Bureau work. This cooperation during 1940 and former years has resulted in a steady growth in membership.

In 1933 the Maryland Farm Bureau had 2,025 members which have increased gradually as shown by the figures for each successive year.

Year	Members	Increase
1933	2,025	.....
1934	2,453	428
1935	3,315	862
1936	3,588	273
1937	4,202	614
1938	4,287	85
1939	4,477	190
1940	5,107	630

Today, with 5,107 members, the Maryland Farm Bureau is the largest it has been in its history with the exception of 1924. Our strength is greater now than at any time because our members are better informed. We should work for a 10% increase to bring the membership to 5,500 for 1941.

An organization must have a strong backing in membership and money to be successful. As the membership grows, financial reserves should be established to insure the permanency of the institution. Your directors have followed this policy, namely, to increase the assets of the corporation. In 1933 the assets of the Maryland Farm Bureau totaled $13,139.50 and have been increased each year as shown in the following figures.

Year	Assets
1933	$13,139.50
1934	15,940.72
1935	17,179.94
1936	17,515.54
1937	19,246.12
1938	19,966.74
1939	21,953.38
1940	29,608.21 for an increase of $7,654.83

This is a definite measure of progress that can be understood by all, while growth in influence and prestige is hard to measure. During these seven years our influence in legislative matters has grown. Among the legislative high spots are:

1—Allocation of the 1½c lateral gas tax to the counties that enabled a reduction in real estate taxes in all counties.

2—Retention of the refund of the 4c tax on gasoline used in tractors and engines.

3—Passage of the fresh egg law.

4—Passage of a poultry-thieving law.

5—Enactment of the district soil conservation law.

6—Enactment of a state grading law.

7—Stoppage of road fund diversion amounting to $3,000,000 per year.

8—Passage of a tax program including luxury commodity taxes and an income tax.

9—A start in the reduction of the state real estate levy.

10—Appropriations to fight Bang's disease, the Japanese beetle and for other special needs.

11—Defeat of several measures detrimental to agriculture, such as a sales tax, wages and hours, a cigarette tax and others.

These are only a few of a hundred or more legislative accomplishments for the benefit of farmers.

When these are considered, the value of Farm Bureau is apparent. These accomplishments have increased the prestige of the organization with business, organizational and political leaders. Evidence of this is seen in the recognition accorded our leaders by appointment to offices of honor in the state and nation during the past seven years.

H. H. Nuttle was appointed to the Board of Regents of the University of Maryland, chosen as the chairman of the State Soil Conservation Committee, elected director on the Board of the American Farm Bureau Federation and made chairman of the Northeast Farm Bureau President's and Secretary's conference. President Turner is chairman of the State Fair Board, chairman of the Maryland Highway Users' Conference, a member of the executive committee of the Northeast Dairy Conference and a member of the American Farm Bureau committee on dairy. Governor O'Conor recently appointed Mr. Turner on the State Defense Council to represent agriculture. Mrs. Weagly was elected vice-president of the Associated Women of the American Farm Bureau at the Baltimore meeting.

These are some of the offices held by state leaders. They are key positions and give agriculture a voice on boards, in organizations and committees that plan programs and make decisions affecting agriculture. This is a definite indication of the growth in prestige of the Maryland Farm Bureau.

There are many problems facing agriculture and business today. Of these, the one of distribution is the most important. Distribution of our own products to the consumers and the distribution of industries' goods to all users are faulty. Correction of this involves improvement in the medium of exchange, money, the breaking down of restraints of trade, the improvement of marketing practices. Thurman Arnold has said that we need a hardhitting consumer movement to tear down the restraints of trade. Farmers are consumers and should study this problem and cooperate with other consumers. Milo Perkins said that under-consumption is the black plague of the 20th century—another way of condemning our distributional system. He went on to say that American genius can and must evolve a better way of getting more goods to more people. In other words, it is to help us all get more for our money. As a start, our thinking must be directed toward a program of abundance. We must consider the individuals more than any set system.

H. S. Agster says, "cooperative business is the pilot to a new economic order." Cooperatives believe in abundance—in better distribution of goods and savings, and are helping to tear down some of the restraints of trade.

The consumer cooperative movement can be the force to carry the fight against trade barriers and all other restraints of trade. We must continue to support cooperative marketing and purchasing with increased energy. If we do this during the next several years, the results will be greatly beneficial to agriculture and business. The study of consumer cooperation should be continued with more emphasis.

One definite project of distribution that the Farm Bureau can work for is the improvement of the Baltimore market facilities. An appropriation is needed to carry on a study of this situation and to start a move to correct it.

Another problem facing Maryland farmers is the many-sided labor situation. First, we have a shortage of farm labor caused by the defense program which will become more acute. A preferred rating should be given farm laborers by the draft boards and some machinery set up to assist farmers in finding the help needed.

The Wages and Hours Act has increased processing costs of canning crops and restricted the market for these products. Further amendments to the regulations covering the processing of farm crops are needed. Every effort should be used to prevent state wages and hours legislation that would have similar results on the handling of farm crops.

There are many other projects for the Farm Bureau to work on. In all we do our first consideration should be to strengthen our democracy and improve the business of farming as our part in the national defense program.

Constant effort devoted to a constructive program over the years has resulted in an increase in membership, in assets, in favorable legislation, and in influence. Maryland farmers have benefited from this demonstration that organization is the most economical method to improve the business of farming. It proves that the cost of organization is less than the cost of lack of organization.

Much has been accomplished, but it is only a small part of what there is to do. Our progress in the years ahead can be greater if we continue in this cooperative effort toward a fuller and richer farm life for ourselves and our children.

MR. WEAGLY: Thank you, Mr. Wise, for that very fine report. We will now hear from some of the Auxiliary groups of the Maryland Farm Bureau. The gentleman who discusses the next subject is Mr. Zach Turner. I doubt if the Farm Bureau members out in the Counties appreciate the service that the Insurance Company renders to them, and I doubt if a lot of the farmers cooperate with the agents as much as they should in helping them to increase their business. Also, I believe the Insurance Company has a few agents who do not realize the struggles of the early Farm Bureau members when they paid their $10.00 and gave their time to organize the parent company and thought that parent company would take care of everything. It is a pleasure to introduce to you our head of the Insurance auxiliary, Mr. Zach Turner.

REPORT ON FARM BUREAU INSURANCE

ZACH TURNER, State Agent

It is always a pleasure to present to the annual meeting of the Maryland Farm Bureau, our sponsoring organization, the progress our Cooperative Insurance Companies have made during the past year.

Standing on the threshhold of 1941, I wish to share with you this message. You may have heard the words of M. Louise Haskins, but I think they are worth repeating, "And I said to the man who stood at the gate of the year, give me a light that I may tread safely into the unknown." And he replied, "Go out into the darkness and put thine hand into the hand of God. That shall be better than a light and safer than a known way."

The Cooperative movement which we are representing here today with the guiding hand from above will certainly help us here in America to preserve democracy and worship God according to dictates of our own conscience and help to build for the coming generation.

During 1940 the agency force in the territories of Maryland, Delaware and District of Columbia made an outstanding record, and everyone appreciates their effort and the cooperative spirit in which they performed their duties. The total volume of life insurance was $1,287,860.00, an increase of 34% over 1939, and auto insurance amounting to 14,230 coverages, an increase of 28% over the previous year. Breaking these totals by states we have the following: Maryland produced ONE MILLION TWO HUNDRED SEVENTY-FIVE THOUSAND DOLLARS worth of Life Insurance ($1,275,000), an increase of 38% over 1939, and 10,561 auto coverages with a 29% increase in business. Delaware had $160,630 worth of Life Insurance with a 19% increase and 2,345 auto coverages, an increase of 27% over last year.

District of Columbia wrote $156,000 worth of life insurance with a 20% increase. They also wrote 1,332 auto coverages, an increase of 20%. All this business went through the State Office located at Charles and North Avenue and handled by two office girls besides keeping records and taking care of correspondence on 200 agents. There are also hundreds of letters that have to go out from this office and hundreds of letters that come into the office monthly. Some of these letters have to be answered and all have to be filed.

We also have a girl who spends full time on claims. There are approximately 7,200 claims yearly that go through this office, besides all the correspondence that goes along with a large number of the claims. Then, there is a record card kept on each policyholder as to the coverages carried. These have to be filed and kept accurately at all times. There are a total of 30,000 auto policies in the Tri-State Territory and 3,000 life policyholders.

I have been trying to give you some idea as to our volume of business, but actually we have our work in the office so organized that we can handle three times as much business as we are now receiving.

Remember no article is any better than the service that is behind it. Remember, when one buys any kind of insurance, all he has is a contract. When the time comes to use the contract is when a policyholder needs service. We are now in position to give better service today than ever before, because there are two claim men working out of the Baltimore office, two men out of the D. C. office, one located in Denton, one in

Cumberland and one in Newark, Delaware. All of these men at one time were agents and they know the agent's point of view on claims. They have the Company's fairness, frankness and honesty in dealing not only with its policyholders but its clients as well. These adjusters are rendering a valuable service to the public, because there are a lot of folks who would not have any redress at all if it were not for an insurance company. Accidents are very bad, but there is a lot of satisfaction to one who is a member of a company, knowing he has his insurance with an organization who is sympathetic and stands behind the contract.

I will not have time to go into details about our services, but will try to touch the high spots. Automobile insurance protects one for Liability and Property Damage which is written to protect yourself for any unexpected losses that might be imposed upon one for damages arising out of an automobile accident.

Life insurance is a savings program that enables dependents of the insured to live on if the unexpected happens. In other words, it provides food, shelter, clothing to the children and widow. Life insurance will also give income to the assured when he reaches retirement. Life insurance will provide education, cancel mortgages, and other benefits can be secured.

I want to take this opportunity to tell you of some of the new services which we are now offering.

1. *Non-Ownership*—Protects an individual or corporation for Liability and Property Damage insurance against the liability imposed upon the insured by law caused by accidents arising out of the operation of outside owned automobiles operated in the business of the assured. The insurance applies only to the named insured. Employees, agents and other persons are not protected at any time by this policy. In order for them to be protected they must carry their own Liability and Property Damage policy.

2. *General Liability*—Protection afforded under the farm policy covers Liability and Property Damage imposed by law arising out of ownership maintenance, or of farm property, its stock and equipment. This policy can be written on practically any class of risk that is desirable.

3. *Garage Liability*—Covers dealers, repair shops, service stations for any Liability and Property Damage imposed by law on any accident arising out of ownership maintenance or operation of the assured's business.

Next year we will be able to report progress on these three new services. There is a real need for the service. There will be *other* forms of insurance that can be handled by our company. Our agents, managers, field supervisors and State office will give any information possible on these new services.

There are now 371,244 policyholders in the three companies. Auto

Company—over 310,394 policies; Fire Company—over 33,336 policies with coverages amounting to over $16,990,300. The Life Company has over 27,514 policies and the amount of insurance is over $35,000,000. Examine your Financial Statement, folks! We as representatives are proud of the progress that has been made. We started in 1926 with a borrowed capital of $10,000. and today our Cooperative Companies have over $10,000,000 in assets. On the first page of the Financial Report, M. D. Lincoln made the following statement:

"Your directors, officers and management are imbued with the idea that the cooperative way is one which can lead a people away from threatening chaos and establish a sound and satisfactory structure for living. They practice cooperative principles in rendering efficient, low-cost insurance service and in investing our assets and reserve funds. They are taking a leading part in the advancement of a cooperative movement now being accepted widely in this country by true Americans who believe that self-help is paramount to the restoration and maintenance of a true democracy for America.

"By insuring cooperatively, you have pooled your insurance funds together with the funds of thousands of other policyholders for mutual protection and financial security in case of probable losses. This is, in itself, one of the basic and successful principles of the cooperative program of self-help.

"Service is the keyword of cooperative insurance protection. It is the constant purpose and obligation of the management to see that you, the policyholder, receive maximum benefits and services from your Farm Bureau Insurance policies. You are always assured of maximum protection at the lowest possible cost.

"Therefore, by providing your insurance needs cooperatively, you are helping to build an increasingly powerful method for the voluntary, democratic control of your own economic destiny.

"This experience is good for all of us. It makes us more resourceful and less subservient to the machines and large-scale selfish interests all around us. It builds our confidence in our ability to meet our needs in a cooperative manner.

"And, with enough of this spirit and practice, the time will come when cooperators will be able to solve the great problems which now threaten democratic progress in national and international affairs. We have in our own hands the tools to fashion our own destiny—the cooperative way."

As a group of insurance representatives, there are three major objectives:

1. Securing a satisfactory volume of new business on all lines and maintaining our present business in force.

2. Working with and helping to develop our sponsoring organization and spreading the principles and philosophy of the cooperative movement in both urban and rural territory.

3. Developing men to carry on Cooperative Insurance Services and in sympathy with the whole cooperative program.

Our sponsoring organizations have always worked with the State office, managers and the agency force to the very best advantage. There has never been a time when they did not cooperate with the Insurance Company to the fullest extent. We have our goal for 1941. With the Home Office helping whenever possible, and our agency force cooperating to its fullest extent, we shall continue to go forward in the future as we have always done in the past.

Last, but not least—we as an agency force representing a Cooperative Insurance Service should at all times learn to work closer together, and support all cooperative institutions.

With strife and turmoil that surrounds us, our thinking becomes confused. Mankind has always been in search of a light as a release from confused thinking. We are cooperators, are privileged to carry a light of Hope—a light representing security and plenty.

Forces are at work in the world today, trying to destroy Christianity and the Cooperative movement and the principles for which they stand. Such forces have never been successful and will not be successful now if each one of us is true to his church and to the cooperative principles. It is not enough for us to thank God we live in America. We must be willing to do our part to keep it a free, democratic country that our fathers planned it to be.

MR. WEAGLY: Thank you, Mr. Turner, that was a fine report. I know that the membership realizes and knows that the Insurance Company has grown faster than almost anything associated with the Farm Bureau. The next subject to be discussed, "Cooperatives," is one subject that I think has caused more headaches in the official family of the Maryland Farm Bureau than any other subject, and I do not know anyone who is in a better position to discuss it than Harry Nuttle. I enjoyed being a director when Harry was President of the Maryland Farm Bureau. I always enjoyed working with him. I consider him one of my best friends, even though he is an Eastern Shoreman, and it is a pleasure for me to present to you at this time, Mr. Harry H. Nuttle, who will discuss "Cooperatives."

OUR COOPERATIVES

HARRY H. NUTTLE

Thank you, Roy, I know we had a lot of headaches when I was president, and the biggest we had was over the coming of Southern States into Maryland. I am not sure what I am expected to say on this subject. I am a director, it is true, but I am spread over a number of places. Before I start on this paper, though, this is probably the only opportunity I will have to tell you Maryland Farm Bureau people how proud I was of you in December during the National Convention in Baltimore. We had to ask you Maryland people to stand back for

the out-of-town people. In some cases you had tickets to the banquet and your wife did not get there. We had a breakfast for all the presidents and secretaries and I went around personally and sold a lot of tickets to our Maryland people, and through sickness on the part of one of the hotel officials, when you were ready to go in to that breakfast we had to ask you not to go. Only 125 could be taken care of and we had sold 200 tickets. And then the way you put yourselves out to entertain those people! I had such nice letters—one from Frank White, and one from Francis Johnson, in which they said this meeting was the best they had ever had. I will have no other chance and I wanted you to know the National organization appreciated your reception to them while they were in Baltimore.

A few years ago, while attending a Board meeting of the American Farm Bureau Federation, Hassell Schenk, president of the Indiana Farm Bureau and a director of the A. F. B. F., said to me "If farmers would buy everything cooperatively and sell everything cooperatively, how much would they save?" I said I didn't know but I would guess 10%, or more. He replied that he had been figuring on it in Indiana, and, by the way, they have more cooperatives in Indiana than we have here in Maryland so his figures were not all theoretical, and he had decided such buying and selling cooperatively would save 13%. If that is so, you can see why any farm organization worth its salt must actively sponsor cooperatives. Especially is this true today when farm prices are so out of line as compared with industry and labor. Necessity is compelling us to cooperate in order to keep our financial heads above water.

We in Maryland are doing more in buying together than we are in marketing. Several of our county Farm Bureaus have cooperative stores which supply feed, fertilizer, seed, fencing, spray material and most anything the man on the farm may need. The largest one is the Frederick Farmers' Cooperative which did close to a $650,000 business in 1940.

A new development in Frederick County the past two years was the formation of a Lime Cooperative on the farm of our good friend Walter Burall. They distributed 8,000 tons of pulverized limestone in 1940 and, judging from lime prices of former years, saved the farmers of that area at least $1.00 per ton.

The cooperative selling of gas and oil is our most rapidly growing development. Southern States Cooperative of Richmond, through a hook-up with United Cooperatives of Indianapolis and under the leadership of W. G. Wysor, its great manager, has breached the ramparts of gas distribution east of the Allegheny Mountains and, with the active assistance and cooperation of the Farm Bureaus in many counties, we are now getting cooperative distribution of gas and oil in real volume.

This new service rendered by Southern States only brings to mind the value to Maryland of such a regional cooperative. Farm Bureau

stores were having a rather hard time until about five years ago because they had no manufacturing facilities and the profits in most of the supplies used on the farm are in manufacturing and not in distribution. So, when Southern States offered to serve our small co-ops and give them a part of the manufacturing profits, we accepted. A rapid expansion followed. We regret the competition which has arisen between cooperatives in one or two counties in the state, but believe the coming of Southern States into Maryland has benefited all the farmers of this state. It has meant, *first*, the rapid extension of cooperative agencies to all parts of Maryland; *second*, a large increase in the number and variety of supplies which can be bought through such agencies; *third*, assured quality, such as open formula feed and fertilizers and pure seeds of known origin; *fourth*, lower prices on farm supplies where quality is considered.

There is a recent development on the Eastern Shore to which I want to call your attention. If it does what we hope it will, some of the cooperatives on this side of the bay may want to join up.

We have formed the Farm Bureau Cooperative Services, Inc., to supervise management and personnel development, advise on methods of merchandising and give auditing and accounting services. After a year or so of preliminary planning, a C. P. A. auditor started work on January 1st. Members of the Boards of Directors of the five participating cooperatives will receive regular statements. Periodic meetings of management and directors will be held, progress of the different co-ops will be considered, credit policies compared and weaknesses analyzed. All this is to be under the supervision of Martin Sutton, field man on the Eastern Shore.

I desire to pay tribute to the oldest of our cooperatives, the Maryland Tobacco Growers' Association. It is furnishing much needed services in marketing tobacco and extending credit and supplies to Southern Maryland. It has an efficient secretary in George Sachse and as president, one of the finest gentlemen in Maryland. My only criticism of Tom Parran is that he is such a big liar. I well remember his introduction of me at a banquet in Calvert County. He was acting as toastmaster and upon arising to present me said that when he was a boy one of their Calvert County neighbors crossed the bay in a skiff to attend a camp meeting on the Eastern Shore. On his return, he was asked what kind of a place it was. "It's a land on which the sun never shines and which the eye of God never saw." Tom then said, "I introduce to you Harry Nuttle from the Eastern Shore."

The Farm Bureau Wool Pool which has served farmers well for a number of years had a very successful year; 48,000 lbs. of wool were handled at a considerable saving to farmers throughout the state. More than $16,000 was paid the farmers and the cost of operating the Pool was about ½c per pound.

We want also to pay tribute to the cooperative credit agencies. When talking of such cooperatives, we must mention, first, the Bank for

Cooperatives which, under our good friend Dr. Bomberger, has been such a God-send to the co-ops in this region. The Federal Farm Loan Associations furnish money to farmer-owners at rates which enable them to retire the debt in a certain number of years and still pay less than 6%, while production credit associations are meeting a different kind of credit need.

Our rural electric cooperatives are expanding rapidly and bringing electricity to many farmers who would never have enjoyed its blessing if efficient, low-cost construction and low interest rates had not justified extension of lines where the guaranteed return per month per mile is as low as $7.50.

A new allotment made in December to the Choptank Cooperative of Denton will enable it to extend its lines to parts of all nine counties on the Eastern Shore, building 1,223 miles to serve more than 3,000 customers. The total mileage built or on order in the state is 1,567, which will serve 4,382 farm and village homes. Why, mileage rolled up in our Eastern Shore project like a snow ball—when you start to roll it on damp, fresh snow.

My first thought was that in buying our cooperatives were doing a good job, but in selling we had not done much. Then I thought of the Maryland Milk Producers' Association, the Maryland-Virginia and the Interstate and I had to back up. Farm bureau folks, when we can progress to where we can sell all our crops as efficiently and effectively as these co-ops market our milk, then I'll think the millenium has come. They're doing a peach of a job.

Aside from milk, the egg marketing agencies established by Southern States are furnishing a much needed outlet for eggs in Maryland and Virginia. Over thirty agencies now receive and grade eggs, pay producers on a graded basis, ship them into warehouses operated by Southern States in Washington and Baltimore. The volume of eggs handled has increased by 25 percent or more each year and annual business climbed to nearly $1,000,000 in the past year.

This egg program has forced buyers of eggs over a wide area to pay better prices to producers. We are hoping our experience in eggs and G. L. F.'s experience in marketing some other farm crops may help us work out at least a partial solution to this marketing problem, which is the big problem of the farmer. We all know that when we producers get only 41 or 42% of the consumer's dollar, something is seriously wrong and a saving of 5 or 6 or 8% in our buying is not going to bring us to parity in income until we have some control over the selling agencies, too.

So, we realize there is a need for education in cooperatives. We want to congratulate the University of Maryland in that to meet this need it held last summer at College Park a three-day cooperative institute participated in by the Extension Service, cooperatives of this region, and farm organizations. An attendance of over 400 augurs well for the

continuation of this institute. Dr. Symons, our hats are off to you, and your other men who promoted this institute.

In making this report, I have endeavored to place more emphasis on new developments and somewhat less on old cooperative agencies. I figured this to be something like a news release to bring you up to date on the growth of cooperatives in Maryland. In a ten minute review, which was the limit set on me, I may have missed mentioning some important cooperative activity. If so, I apologize. I intended to brag about our Farm Bureau Insurance Services but Zack Turner has already done that and justly so. It's no crime to brag when you have something to brag about. Just so our chest doesn't stick out too far or our heads begin to swell.

We are proud of what has been done in Maryland this past year. Cooperation is self-help and we farmers believe in self-help. So, through education, through contact with our neighbors, through time given and loyalty pledged anew to those businesses which you and I and our neighbors own together, let us work toward a fuller, richer, more independent and happier life for the man on the land. Cooperation has already achieved much in this direction. Progress will continue. The harvest season is yet ahead.

MR. WEAGLY: There is one thing I always liked about Harry. He will always give credit when credit is due. I sometimes wonder what kind of a world this would be if it was made up of men and men only. You will notice on your program that I am going to present to you a lady at this time. It is a pleasure for me to present to you the head of the Associated Women of the Maryland Farm Bureau, Mrs. Edwin D. Fry.

ACTIVITIES OF ASSOCIATED WOMEN 1940-1941

MRS. EDWIN D. FRY, President

The year 1940 has been one of unusual activity and success for the Associated Women, I am happy to report. We succeeded in attaining several goals set last year and made progress consistently. Much of this success is due to the encouragement and support of Mr. Turner, Mr. Wise and all in the state office who have helped time and again, when help was needed.

Mr. Wise in serving ably as our treasurer, reminds me of the story of the wife, who was striving to put some efficiency into the family finances by using a budget plan. At the end of each month, she and her husband went over the accounts together. Upon one occasion he noticed an entry, "N. K. $1," on her books and a little farther down the list of items another one, "N. K. $5." "What's this N. K. you're buying?" he inquired. "Oh," she informed him blandly, "that stands for Nobody Knows." Well, nobody knows how to make our allowance of ten cents per member go quite so far as Mr. Wise.

Ninety-seven new memberships were secured by women last year. We realize that an informed, active, loyal and growing membership is the

core and key to success in organization work. For this reason women will continue to devote much time, thought and energy to this phase of Farm Bureau work in 1941.

In the coming year the words "For defense" will have their effect upon our thoughts, actions, our very lives and it will be our responsibility to so plan and work, within our homes and in our communities, that some permanent good will result. That we should expect to build a stronger democracy through sacrifices, working together with a common purpose is reasonable, God willing.

Humanity still reiterates the same old question, perhaps with different words but with the same meanings.

How shall we find security?

How shall we learn to understand and wisely use, our part of the world of nature, so that all may live healthy, fearless and abundant lives?

How may we know the satisfactions of creative work, achievement, and the joy of service to our fellowmen?

How may we on this continent maintain our democratic form of government in these perilous times, for the generations to follow?

How can we best instill these democratic ideals, train and strengthen our youth to receive this heritage and carry on peacefully with their fellowmen?

How may we find the sources of our needs, spiritual and material, in order to improve conditions of living here, today?

To get the right answers to the many problems that are constantly confronting us, we must ask the right questions of the right persons in the right place.

There is, at present, no better plan for finding the answers than in our local Farm Bureau planning or discussion groups, meeting in homes. This is an ideal way for farm families to get together for information and recreation. Women are needed, more than ever, to help carry out this part of our program in the future. Our program for 1941 will include plans for assisting in the formation of more consumer cooperative buying clubs and an educational campaign stressing their value.

I wish to express appreciation, on behalf of the Associated Women, to the Maryland Farm Bureau for continued interest and contribution, which made it possible for five 4-H Club girls to receive the inspiration and leadership training at Club Week in 1940.

The scope of women's work in Farm Bureau has broadened to include them on many committees, including the committee delegated to meet with Governor O'Conor in behalf of the University of Maryland budget.

At this time let me say that Associated Women welcome the occasions that bring us into close working relationship with the University and members of the Extension Service, toward the common goal of better rural living.

This year we are happy to have a chairman of Associated Women in every county, with Harford, Wicomico and Montgomery joining the group of counties now actively organized.

More interest in health matters has been shown during the year just passed. The Associated Women affiliated with the Maryland Health Congress had four representatives present at the annual discussion meeting of the National Council for Mothers and Babies in Washington on November 15th and have been active in helping to organize groups under the Blue Cross Hospital Plan.

We are proud of our two Maryland women who received honors in a national way.

Mrs. Weagly was elected Vice-President of the Associated Women of A. F. B. F. at the recent sixth annual convention and Mrs. G. M. Hostetler, who placed second in the public speaking contest, with her challenging talk on "Producer-Consumer Relations." More women participated in the contest within the State this year than ever before—seven in all. Education in the home for civic responsibility should prove to be an interesting topic for the 1941 contest.

Other types of contests among women, or in which they played a part, were baking, well baby and garden contests. The garden contests were of two kinds. In Charles County, Farm Bureau members and other farm families competed, in Montgomery it was a self-help project among families on relief. Montgomery County Farm Bureau supplied judges and several prizes, such as gardening tools and spray materials. Results were encouraging in both counties and it is hoped that, with increasing interest in proper diet, more counties will sponsor garden contests this year.

We all realize that the outstanding event of the year was the National convention held here last month. There is a prodigious amount of work necessary in order that those who attend a convention shall have something worthwhile to take back and make use of in their local organizations. The question has been asked time and again, "Of what use or benefit is a convention? Why make the effort to go? Why spend the money? Do they help?" Emphatically, "Yes."

In this day and generation, we live in a constantly changing atmosphere. Great things are accomplished and greater deeds are to be done. We are constantly reaching out beyond the horizons of our own neighborhoods to receive the knowledge which comes through organization. There is always inspiration in numbers, which stirs within us thoughts and ambitions for which we cannot compute a money value.

Isn't it true that we do gain something from conventions that is inestimable to our development? Our responsibility to questions of international, national, state and local needs. We need the wider vision it brings and the deeper appreciation it brings of home and neighbors.

Before concluding, I wish to pay tribute to Mr. Wise and his generalship of the national convention committees and also to express my

grateful appreciation for the willing cooperation of all who helped the Entertainment and Decorations Committee in so many ways.

MR. WEAGLY: Thank you, Mrs. Fry that was a fine report. We are now going to have a little music, and I want to call your attention that we have one Farm Bureau director who has been the President of his County all through the years, and that is Mr. McDowell. His daughter is presiding at the piano today, though her name is not Miss McDowell.

Music

"Working Together in 1941" will be presented by Dr. T. B. Symons, who needs no introduction. I would like to say that I have a lot of respect for Dr. Symons. In our Board meetings, when we have some difficult problems, and we do not all think alike about things, about that time Dr. Symons will get out his pencil and paper and begin to write and the talk goes on, until somebody says, "Dr. Symon, what is your idea about that?" He has something to help us out, and will say, "I will just read what I have been writing down here," and that is just what we want, and we will pass it. Today he is going to discuss "Working Together in 1941," and it is with pleasure that I present to you the Dean and Director, College of Agriculture, University of Maryland, Dr. T. B. Symons.

WORKING TOGETHER IN 1941

DR. T. B. SYMONS, Dean and Director, University of Maryland

Thank you, Roy—that was a very nice introduction.

It is a privilege to again address the annual meeting of this active and cooperative organization. I am happy to bring you greetings of all our associates, and especially of our Extension Agents, who are trying devotedly to render greater service to the farmers and homemakers of the State.

The topic assigned me by your Secretary suggests many fields of thought. We all feel, I am sure, that 1941 will be a time when all people and all agencies in this country should be united and should be working together toward the achievement of vital goals in a way that they probably have never worked before. In the short time that I will talk to you, however, I am inclined to think of "working together" as the philosophy of Maryland—a *philosophy* that is not new in this State, but a philosophy that is responsible for great achievements in the past and capable of bringing as great, or greater, achievements in 1941 and future years.

Has it ever occurred to you that there is no greater privilege which one group can request of another, or which one friend or associate can ask of another, than that they work together for service, accomplishment, and progress. That is the philosophy of the Extension Service, the College of Agriculture, the Experiment Station, the Farm Bureau, and the other agricultural organizations and interests in Maryland. We like to work and we like to work together. It is the greatest joy of life.

Working together in 1941 will have a special significance—nay, a greater significance—in view of the world situation, than any previous year. While I trust we may not be called to "blood, toil, tears and sweat," in the manner of so many nations of the world, yet we gain nothing by trying to evade the fact that our freedom to work together in peace is at stake, and our destiny for many years to come may in large measure be determined. The threat to the democratic theory of government has grown with almost every passing day in 1940, and it is with that realization on the part of all the people that we face in 1941 and succeeding years an unprecedented attempt by our Government to provide adequate national defense. Because our farm people love freedom, because mankind is suffering such a frightful ordeal, and because we wish to live in peace and share an honorable prosperity, there is no defeatist talk among our farm people. They are willing to work and sacrifice with other groups in this nation as much as is necessary that our country may be adequately prepared to defend the principles which are responsible for development of what we proudly call the "American way of life."

Impact of War

Already the war has had, and it will continue to have, an effect upon the agriculture of the United States and of Maryland, whether the war continues and spreads, or comes to an end in the comparatively near future. More and more, I believe, our people are appreciating that whatever befalls mankind in other lands, especially in Europe, seriously affects the well-being of America. Agriculture, especially, is affected. A recent outlook report states: "Summing up prospects for international trade in American farm products during the 1940-41 marketing year, it would seem that the outlook for exports is probably as black as it has been for any marketing year on record. It is indicated likewise that when peace comes, no rapid recovery in the export market is in view."

Maryland agriculture is fortunate in that we are not nearly so dependent upon export markets as some states and regions, but the repercussion on those states and districts will have its effect upon Maryland producers.

The immediate outlook is not nearly so dark, although it may be difficult for certain lines of production. The defense program, involving as now indicated from 20 to 25 billions of dollars in the next five years and reaching its peak in 1942, will have a decidedly favorable effect on the purchasing power of consumers of agricultural products. It is true that a great body of our citizens have been underfed because of inability to buy the foods needed. We can expect a constantly increasing consumption of meats, fruits, vegetables, dairy and poultry products as these people are able to more nearly meet their food requirements. The fact that we are near to, in fact, almost surrounded by this industrial expansion, should greatly increase the demand for those products at our very gates. Our problem, it seems to me, is to so adjust our production as not to over-expand our capital investment, so that we can curtail in pro-

portion to the reduced demand that will naturally follow the completion of the emergency defense program. That is easily said, but sometimes it is difficult to adjust. It is similar to getting along with a reduced income and a family that has been accustomed to certain privileges and standards of living. As a long-time factor, we should remember our troubles following the last war. Farmers should be guided and encouraged to farm safely—to question the increasing of their debt load, and to protect themselves against investments in land, livestock, or equipment at high price levels.

It is probable, likewise, that advances in wages for farm labor, cost of materials and equipment used in production, may be so great as to offset to a considerable extent the temporary increases in farm income.

I cannot go into detail, but merely suggest that the farm family that plans and works with its neighbors, with its farm organization, and with its Extension Service, as well as any other agencies which may be helpful, is much more likely to cope successfully with the new problems that arise than the family that attempts to chart its course and travel that course alone.

Labor Shortage

Our favorable position in respect to market demands by surrounding industrial development is now and will continue to be a serious handicap in available farm labor. Already the tremendous inducement of higher wages has drawn heavily upon our rural districts near expanded industries and Government defense activities. This inducement can be expected to increase in 1941, rather than diminish. Recent surveys indicate roughly that we are about 4,000 farm laborers short of current needs.

We are not certain that there exists a practical solution of this problem. Certainly, there should be no excuse for unemployment in our counties under this state of affairs. We also learned from experiences of the last war that farmers cannot expect much relief from inexperienced and so-called city bred labor. We may be able to take more advantage of migrant labor from sections where the pressure of industry is not so great as it is here.

The principal relief from this situation, in my opinion, is going to be more work on the part of all of us engaged in agriculture, better organization of our plans for production so as to use the available farm labor most efficiently, and the utilization of machinery. It will mean more work by the family. So, truly, we may expect to work more closely together in 1941 than ever before. Farmers will have to help each other during harvesting and other rush periods. We may be called upon to organize communities for helping each other, similar to the present practice of wheat threshing on the Eastern Shore, and the wood cutting carnivals of olden days. Undoubtedly, the dairy industry, and similar production units that require somewhat skilled and regular labor, will be the most harassed.

Perhaps we should shortly take steps to organize our forces for the 1941 season to reduce this severe handicap to the minimum. Perhaps we should consider using more convict labor on public works, such as roads, thus freeing available labor for our farms.

Soil Conservation

In working together in 1941, perhaps the greatest contribution we can make to the permanent defense of our land is through proper and more general recognition of the importance of conserving our soil resources. There are 4,384,000 acres in Maryland farms. All of this is not good crop land. In fact, perhaps not more than 50 percent could be classed as good land. There are infertile, waste acres, swampy acres, and acres that are poor because of over-cropping—or erosion. Only within the last few years have we realized the subtle devastation of gently sloping land by sheet erosion.

It is gratifying to record the generous response of farmers to this realization and their cooperation with the Federal and State programs for soil conservation.

The Soil Conservation Districts Law, enacted by our State Legislature in 1937 through active support of the State Farm Bureau, is actually accomplishing wonders in this comparatively short period.

In the first report of the State Soil Conservation Committee to the State Board of Agriculture and the Governor, it is shown that to date five soil conservation districts, involving 1,724,000 acres, have been formed by the voluntary action of the farmers concerned. Two more districts, involving approximately 607,000 acres, are now in the process of formation.

The farmers of Maryland have begun and are now developing what may properly be designated as a revolution in methods of farming, with the goal and slogan of "Save Our Soil." Contour farming and strip cultivation are gradually taking the place of up-and-down-hill farming. This is an outstanding project of lasting benefit to the people and to the State as a whole, in which all can work together vigorously.

Miscellaneous Projects

If time permitted, I would like to discuss many movements in the domain of mutual interests. I can only mention some of them.

Marketing. First, I would urge an active—indeed, a militant consideration of our marketing problems. In my judgment, they present one of our greatest needs. We know that the problems are complex and many factors are involved, but certainly by working together progress can be made toward reduction in costs of distribution and a more adequate system of distributing our agricultural products, particularly fruits and vegetables.

While great progress in cooperative marketing and buying has been made in certain lines in Maryland, the possibilities in that line have by

no means been exhausted. Farmers' co-ops have grown into a tremendous business in this country. According to a recent report of the Farm Credit Administration, they have a membership of more than three million producers and in the year 1939-40 handled a two billion dollar business. Marketing associations constitute 75 per cent of the 10,700 active cooperative organizations. The groups marketing dairy products led in the number of members with 620,000, and in volume of business, at $560,000,000. Other principal commodities were grain, dry beans, and rice, $390,000,000; livestock, $282,000,000; fruits and vegetables, $273,000,000; and cotton $78,000,000. Certainly, it is worth while to thoroughly canvas the situation in Maryland and see if the marketing of some of our products cannot be improved by cooperative effort.

We need to pay greater attention to quality production and the proper grading of our farm products. Notwithstanding the fact that legislation providing for state grades was secured, it is regrettable that not a single request has been made to the State Board of Agriculture to establish state grades for a single product. Let us work together to accomplish something in this field in 1941.

May we also be successful in arousing all forces to the importance and urgent need for better marketing, and terminal facilities in this great city in 1941.

May we consider seriously a cooperative working plan between our Farm Bureau and our canning industry, so as to prevent a serious overproduction of these crops. The outlook in this field of production in 1941 is encouraging, and for that reason alone care should be given to the extent of its increase or development.

Coordination of Farm Programs. I wish time permitted a discussion of the Triple A program in Maryland, and how we could plan for Maryland farmers to earn a greater proportion of the funds available for soil-building practices. It is unnecessary for me to state that we in Maryland heartily subscribe to the program enunciated by the American Farm Bureau in urging greater coordination in all of these programs, and particularly more assistance to our County Agents, so that they can better assist in carrying out the program and at the same time render the regular Extension services to our people. We need more funds.

Nutrition. As a nation, in this emergency we are realizing more and more our needs in the nutrition field. I am told that only 57% of our young men are acceptable for the army. This presents a challenge to all of us, and especially to our Associated Farm Bureau Women and to our Home Demonstration Agents who also need assistance to carry the gospel of better nutrition to all of our people.

Hybrid Corn. I would like to discuss also the important problem which confronts us with respect to hybrid corn in Maryland. If development in that line is at all similar to what has occurred in other

states, and there is every reason to believe that it will be, we need to be making plans for providing adapted strains of hybrid corn for our growers. This involves an item of perhaps a quarter of a million dollars, a great portion of which will go out of the State if we do not plan vigorously to supply this source of seed within our borders. A satisfactory solution of this problem calls for working together on the part of many interests, including the corn growers, the specialists, and also the dairymen, stockmen and poultrymen, who have a very direct interest in production of more feed at lower cost.

Drainage. Our farmers on the Eastern Shore who are working together on a splendid drainage program merit our congratulations. This is an outstanding example of all forces working together in a comprehensive program that will be of lasting benefit to our people.

Weed Control. I wish we could join forces more effectively and really accomplish something worth while in weed control. Practically no effort has been made in that direction in our State. The loss that is sustained annually is tremendous, but it comes in so many ways and we have become so accustomed to it that we fail to appreciate its magnitude. I was impressed recently by an estimate of the loss due to weeds in another state. It said that a reasonable estimate placed the annual weed tax at $60,000,000. It mentioned the loss due to reduced yield and quality of crops, to extra cultivation, to control of weeds on public rights of way, and in other ways. That state was larger than Maryland, but we cannot escape the fact that weeds are costing our farmers millions of dollars annually, and that certainly is a problem of sufficient magnitude to challenge the best combined efforts of all the people. Perhaps we should consider some legislation. Certainly we need an educational campaign on the control and eradication of weeds.

Rural Electricity. Splendid progress is being made in rural electrification. Hundreds of miles of line are being built in our rural areas on the Eastern Shore and in Southern Maryland the R. E. A. We are also appreciative of the fine cooperation given by our public utilities in building rural extensions. The value of bringing better light into farm homes, together with other conveniences and comforts which electricity makes possible, can scarcely be estimated for the strenuous period that lies ahead.

Rural Housing. Finally, let me call to your attention a great need in our rural sections—namely—better rural housing. One of the strong arms of defense is the maintenance of farm homes in such condition as will best conserve health and afford reasonable comforts of home life, and the maintenance of farm buildings in a state of efficiency that will better enable farmers to meet the demands of this exacting period. Rural people need to be encouraged to improve their housing; they need assistance in planning improvements; and, they need training in the skills necessary to carry out the plans.

It is important that we be aware of the effect of poor housing facilities on the physical and mental habits and attitudes of our rural people. While we pride ourselves on the outstanding farm homes in Maryland, we must recognize also that there are a tremendous number that need repairs. A national survey in 1937 showed that one-half of all occupied farm homes were in need of major repairs. When poor shelter and inconvenient surroundings for every-day living are coupled with other lacks, people lose ground in the ordinary struggle for health and well-being, which are the ultimate aim and end of most all our efforts.

I quote the following statement to emphasize this important need at this particular time: "The home is the workshop for developing successful social behavior. This is a necessary substance of the keystone of the arch of total defense to the people. The cohesive element binding the substance together is the feeling and belief in their well-being. Improved housing is dynamic in national unity."

May we work together in attacking this problem so vital to the future welfare of agriculture and our rural people.

Organization

I have not referred specifically to the need for organization. It seems to me that we must assume that there will be organization when we are considering working together. In view of all the wonderful accomplishments of farm organization through the years, and especially in times of emergency, it may appear a bit strange that effort is still necessary to induce a large number of farmers to work together with their fellow farmers in doing things which cannot be done by individuals. What may be accomplished by working together in 1941 will depend in a very considerable degree upon the number of farmers who will join whole-heartedly with their fellows in striving for the desired results. New recruits are an essential of any army. Likewise, new and enthusiastic workers are needed in all farm organizations. The year 1941 is an opportune time to work together for strengthening the forces of organized agriculture in Maryland.

MR. WEAGLY: Dr. Symons, I thank you for that fine paper. It came to my mind when I was listening to it that I believe the time has come that we must forget that we are Democrats or Republicans, and all get behind in a concentrated effort to take care of the interest of our rural people, and also maintain our democratic government.

Mr. Wise gave some announcements, and the meeting adjourned.

AFTERNOON SESSION

The film "Baltimore" was shown, and the F. F. A. Medal Awards were presented.

President P. C. Turner introduced Richard Blackburn as Chairman for the afternoon session.

LIST OF WINNERS
in the
MARYLAND FARM BUREAU—F. F. A. PROJECT CONTEST
1939-40

Project	Rank	Winner	Teacher	High School	Labor Income	Medal
Miscell. Livestock:	First	Walter Brown, Jr. (Sheep)	Sydney T. Lawler	Sherwood	$ 305.17	Gold
	Second	Walter Brown, Jr. (Horses)	Sydney T. Lawler	Sherwood	23.86	Silver
	Third	Wendell W. Umbel	Charley B. Miller	Friendsville	51.30	Bronze
					$ 380.33	
Miscell. Truck:	First	Joseph L. Newcomer	Harold Remsberg	Smithsburg	$ 155.70	Gold
	Second	Karl Flerlage	T. C. Martin	Hughesville	20.43	Silver
	Third	Tom Seibel	Sydney T. Lawler	Sherwood	23.36	Bronze
					$ 199.49	
Miscell. Crops:	First	William J. Hines, Jr.	Sydney T. Lawler	Sherwood	$ 14.62	Gold
	Second	Joseph N. Peter, Jr.	Sydney T. Lawler	Sherwood	15.17	Silver
					$ 29.79	
Corn:	First	Robert S. DeLauder	J. Homer Remsberg	Middletown	$ 365.74	Gold
	Second	William J. Hines, Jr.	Sydney T. Lawler	Sherwood	68.55	Silver
	Third	George Hoffman	T. C. Martin	Hughesville	10.95	Bronze
					$ 445.24	

LIST OF WINNERS IN THE MARYLAND FARM BUREAU—F. F. A. PROJECT CONTEST—(Continued)

Project	Rank	Winner	Teacher	High School	Labor Income	Medal
Potatoes:	First	Calvin Harvey	O. T. Graser	Oakland	$ 222.67	Gold
	Second	Karl Flerlage	T. C. Martin	Hughesville	150.38	Silver
	Third	Joseph N. Peter, Jr.	Sydney T. Lawler	Sherwood	16.79	Bronze
					$ 389.84	
Tomatoes:	First	Melvin Mackert	Gerald Biggs	Federalsburg	$ 45.07	Gold
	Second	Albert Kretsinger	Harold Remsberg	Smithsburg	95.87	Silver
	Third	Francis Wright	Gerald Biggs	Federalsburg	36.00	Bronze
					$ 176.94	
Tobacco:	First	George Hoffman	T. C. Martin	Hughesville	$1,064.07	Gold
	Second	Karl Flerlage	T. C. Martin	Hughesville	996.35	Silver
	Third	Odus Bragg	T. C. Martin	Hughesville	1,203.90	Bronze
					$3,264.32	
Poultry:	First	Elbridge C. Hill, Jr.	C. W. Seabold	Reisterstown	$ 430.10	Gold
	Second	Daniel Klotz	William Tarbell	Grantsville	349.15	Silver
	Third	Roger Reedy	Frederick W. Fuller	Jarrettsville	164.67	Bronze
					$ 943.92	

Project	Rank	Winner	Teacher	High School	Labor Income	Medal
Swine:	First	Harold Thompson	C. Merrick Wilson	Poolesville	$ 98.49	Gold
	Second	Walter Brown, Jr.	Sydney T. Lawler	Sherwood	438.29	Silver
	Third	Joseph Walter Scott	C. W. Seabold	Reisterstown	145.83	Bronze
					$ 682.61	
Dairy:	First	C. Richard Ahalt	J. Homer Remsberg	Middletown	$ 336.29	Gold
	Second	Charles Renn Remsberg	J. Homer Remsberg	Middletown	336.48	Silver
	Third	Robert S. DeLauder	J. Homer Remsberg	Middletown	222.79	Bronze
					$ 895.56	
Baby Beef:	First	Maurice R. Fuss	Robert K. Remsburg	Emmitsburg	$ 167.84	Gold
	Second	William D. Benson	Max A. Smith	Clarksville	116.54	Silver
	Third	William H. Randall	Max A. Smith	Clarksville	146.10	Bronze
					$ 430.48	
Diversified Farming:	First	*George Hoffman	T. C. Martin	Hughesville	$1,105.00	Gold
	Second	†Robert S. DeLauder	J. Homer Remsberg	Middletown	680.10	Silver
	Third	‡Karl Flerlage	T. C. Martin	Hughesville	1,195.13	Bronze
					$2,980.23	

*2 dairy animals
4 acres tobacco
1 acre field corn

†10 hogs
75 laying hens
6 acres field corn
3 dairy animals

‡1 acre garden
4 acres tobacco
1 acre potatoes
1 acre field corn

Grand Total.....$7,988.04

Average per Project—$221.88
(36 projects)

MR. BLACKBURN: Thank you, Mr. Turner. I do want to say a few words about the F. F. A. boys that we have just had before us. That is one of the finest things that we could have in our farm work. They are trying to develop leadership in Maryland, and we want to develop those boys. We need leadership.

At this time I am going to call on Mr. King, who will give us the report of the Credentials Committee.

Mr. King read the following report:

REPORT OF CREDENTIALS COMMITTEE 1940
MARYLAND FARM BUREAU, INC.

County	Paid-up Members	Number of Directors	Number of Delegates
Allegany	57	1	1
Anne Arundel	182	1	4
Baltimore	485	1	10
Calvert	153	1	3
Caroline	250	1	5
Carroll	340	1	7
Cecil	104	1	2
Charles	269	1	5
Dorchester	104	1	2
Frederick	639	1	13
Garrett	101	1	2
Harford	428	1	9
Howard	156	1	3
Kent	216	1	4
Montgomery	313	1	6
Prince George's	218	1	4
Queen Anne's	159	1	3
St. Mary's	99	1	2
Somerset	145	1	3
Talbot	132	1	3
Washington	210	1	4
Wicomico	229	1	5
Worcester	118	1	2
Associated Women	.....	2	6
Maryland Stockmen's Association	.....	1	1
Maryland State Horticultural Society	.....	1	1
Maryland State Poultry Council	.....	1	1
Maryland Cooperative Milk Producers, Inc.	.....	1	3
Maryland Tobacco Growers Association	.....	1	3
Hillsboro-Queen Anne Corporation	.....	1	1
Maryland Vegetable Growers Association	.....	1	1
Maryland State Beekeepers Association	.....	1	1

Maryland Crop Improvement Association		1	1
Maryland State Horsebreeders Association		1	1
Maryland Holstein-Friesian Association		1	1
Maryland Ayrshire Breeders Association		1	1
Total	5,107	37	124

Total votes—161.

Respectfully submitted,

JAMES D. KING, *Chairman*
JOHN S. BUSHEY
EARLE KEENE
MERTON SHAWN
FRANCIS SHILLINGER

MR. BLACKBURN: The State Farm Bureau has some awards for the Counties. I am going to ask Mr. Wise to step forward and award these prizes.

MR. WISE: It is with great pleasure that we announce the awarding of these certificates of the State Farm Bureau to the Counties which scored more than 75. I am not going to ask you to step forward for these at this time, I am only going to read the list, and we will mail the certificates. I am just going to tell you now which Counties have received them. Twenty out of the twenty-three have scored 75 and over, and we think we will have to raise the figure next year.

COUNTIES WINNING CERTIFICATES AND NUMBER OF POINTS

Anne Arundel	76
Baltimore	76
Caroline	86
Calvert	81
Cecil	75
Charles	78
Carroll	87
Frederick	81
Garrett	75
Harford	76
Howard	76
Montgomery	80
Kent	83
Queen Anne's	75
Somerset	78
St. Mary's	78
Talbot	82
Washington	81
Wicomico	82
Worcester	76

MR. BLACKBURN: I am sure that all of the Counties which were fortunate enough to receive an award for their active work during the past year are going to work just as hard and try to get one at the higher figure next year.

Next on the program is a very interesting subject. It was my pleasure to meet Dr. Corbett last fall at the State Fair. At that time he was a newcomer in our State, coming from the University of Connecticut. He did not know just what was ahead of him, but I think by this time he has a good idea of what to expect. At that time, I know he felt he was here on trial, but I think since then he has proven that he is more than capable of the job that he has at the University of Maryland. I do not think they could have picked a better man for the address that he has "What's Ahead," because he has a good bit to learn about what is ahead in Maryland, and at this time I want to introduce Dr. Roger Corbett, Director of Experiment Station, University of Maryland.

WHAT'S AHEAD

R. B. CORBETT, *Director*
Maryland Agricultural Experiment Station

The most important single factor in what's ahead for agriculture is the trend of prices. Much of the past ten years of agricultural depression can be explained by price relationships. It has sometimes been said that economics is the science of price. Certainly price is the summation of all business transactions. The forces of supply and demand, the influence of cost of production, in fact all economic factors, finally are summarized in the price of a product. Thus, when we are talking prices, we are discussing the very heart of the economic situation.

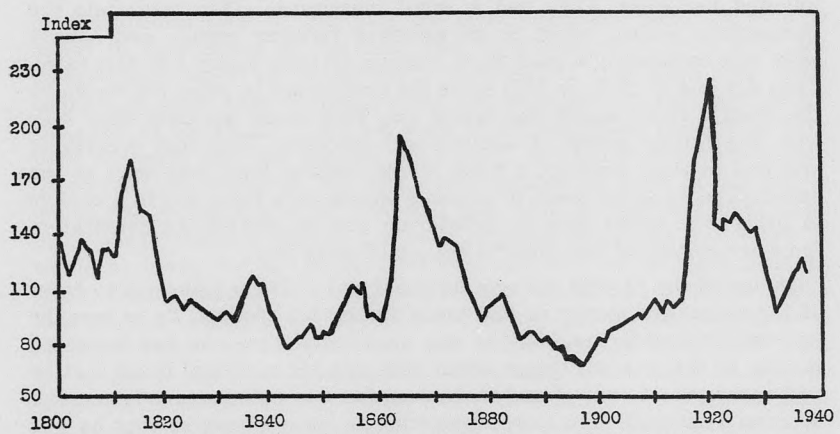
These generalizations can be made specific through the examination of a few facts. These facts also will give the look backward which is so important in appraising the future.

The summation of virtually all our price facts can be found in what has become known as "the general price level." On the first chart we have a picture of the general price level. Just what does it mean? The general price level is made up of about eight hundred different prices. Between any two periods some of these prices may be rising, others may stay at the same level, and still others may be falling. All of these diverse tendencies are brought together in this one line. The more important factors have the greatest influence upon the direction of the line. For example, the price of wheat affects the line more than does the price of rye because we have more wheat in the United States. The years 1910-14 are called the base years and everything is compared with them. The average of these prices for the years 1910-14 is 100. These years are chosen since they were the last years before the previous World War, and things were felt to be as nearly normal as any recent five years that can be found. If one knows enough about prices, this line virtually tells the economic history of the United States.

Go back for a moment more than 140 years, to the point where we have the first facts on price. At that time prices were high as compared with 1910-14. About 1812 prices began to rise with tremendous rapidity, reached a peak of 80 per cent above the base period, and then crashed downward, hesitated a while and then fell again. There is some very interesting history reflected in the prices between 1820 and 1860, but attention will be given only to the major changes in price level. In 1861 prices again began to rise with tremendous rapidity, reached a peak of nearly 100 per cent above the base, came crashing downward, hesitated a while, and then fell again during that famous depression of the 70's. After a brief period of relief they continued downward into the depression of the 90's, when grain was burned for fuel on farms, the whole country was talking silver and prices, and the nation was in one of its most serious periods. In '96 a period of rising prices began and during this upward trend much of our conversation centered around the high cost of living. "Go back to the farm" and other similar slogans which encouraged agricultural production were in vogue. About 1916 prices again began to rise with tremendous rapidity, reached a peak of approximately 220, crashed in '21, then hesitated for the period of the 20's, which we now look upon as the days of prosperity, then crashed again as we experienced the depression of the 1930's.

CHART 1

GENERAL PRICE LEVEL OF THE UNITED STATES
1910-14 = 100



These great changes in price affect all human relationships. You and I are definitely affected by such shifts in price. Here are a few illustrations from actual experience.

In 1919 the city of Akron, Ohio, was discussing one man. His name was Seiberling, President of the Goodyear Tire & Rubber Company. The City of Akron was proud of him. It was said on the streets that he had

started with nothing and at that time was worth ninety-one millions of dollars, and the people always put on the one million. He was a business agent, an industrial hero. In 1921 Mr. Seiberling was thrown out of the Goodyear Tire & Rubber Company. He was no less a great man in 1921 than he had been in 1919, but it was one thing for a great corporation to buy raw materials, hold them a while while they were being processed, and then sell them on a much higher price level than when they were purchased. It was another thing for a great corporation to have huge inventories purchased at a high price level, hold them for a while while they were being processed, and then sell on a much lower price level. Everything in the one situation makes for profits. Everything in the other situation makes for losses. An illustration of the rise and fall of an industrial giant through a change in price level.

In the late 20's a group of us sat at a dinner table in Providence, Rhode Island. The speaker was the one person who was not a native of the State. The other three were all graduates of the Rhode Island State College, but did not know it until the conversation had gone on for some time. Then, as we all do, they began checking on whom they knew in common. They talked about this person and that person and finally came to the name of a girl whom they described something like this. What a live, vivacious, optimistic person she had been while in college. A leader, a person that everyone liked to be with, but how life had changed her. They described her as old, disappointed, almost broken and discouraged. I could not help but ask what the history was. It seemed that this girl had married a boy from Rhode Island State College in the class which followed her class. They had a small inheritance. They went into the Connecticut Valley, which is an excellent farming region, and bought what was apparently a good farm, putting all their equity into this farm. They did this in 1919. In 1921 came the great crash in price (as shown by the chart). Their equity was wiped out. They could not meet their bills with the falling prices of agricultural products. They lost everything and had to start anew in a much worse position than they were at the outset. The financial crash of a young couple on a farm due to a change in price over which they as individuals had no control. An illustration from agriculture of the effect in change of price level.

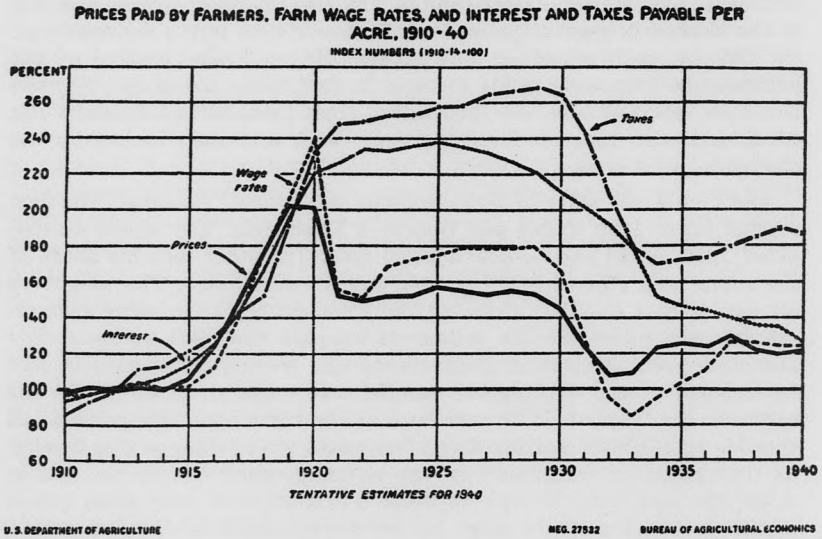
In one of the eastern states a financial and political boss used to boast of the amount of money he had made during his lifetime. To be sure, he had inherited a fortune, but he was proud of the way he had increased it. One of the unusual things about him was his continual boast that he had never gone to school and that education was unimportant in a man's success. This made him more interesting to many people so that he was given much publicity. At one time a statement was made as to what he had inherited in the late nineties and what he was worth just prior to the crash in prices in 1929. If one was to apply the general rise in prices as indicated by the general price level (from which anyone who had a diversity of holdings would have benefited), or, to say it another way, if this rise had been fully discounted, instead of increasing the fortune,

he had added approximately 5 per cent per year to what he had inherited. This was just interest on his capital. The rest of his greatness was due to the change in general price level. To prove this, in the depression of the 30's his political power was broken. He no longer boasted of the additions he had made to his fortune. In fact, since the early 30's little has been heard of him. An illustration from political and financial life which indicates that an individual was made and then broken by the change in price level.

And finally, the story of three brothers who started farming. The first started about 1890, failed and became a hired man. The second started about 1892, failed and became a hired man. The other took his share of the estate and started in 1896, and was a real success. The neighbors all agreed that they had expected the youngest boy to be more successful—he was more like his father. It happens that this youngest boy became a great student of prices during the latter part of his life, and he laughed at the explanation that he was superior in ability to his brothers. He simply said, "I was born at the right time." He pointed out that his brothers started farming when prices were falling and as quickly as they made an investment it was virtually wiped out by the fall in price. He was lucky enough to make his start in a year when prices began to rise, and every move he made was helped by the increase in prices, and it was easy for him to be successful.

These four illustrations drive home the point that all human relationships are affected by changes in price level, and that your life and my life is interwoven with the effects of such changes. To repeat, the trend of the general level of prices is the most important factor in what is ahead in agriculture. It has been said that changes in price level are unimportant, since all prices move together. If this were true these changes in price level would be relatively unimportant. But, such is not the case. In the second chart are some of the individual prices that have been averaged into the general price level. In 1910-14 these lines were together, each averaged 100, but what happned to them in the subsequent rise in price level to 1920 and the crash in 1929 and 1930? The price which farmers receive for their products is not on this chart. It would be lower during the 20's and 30's than any one of these lines. In effect, during most of the 20's the farmer had to sell a bushel and a half of some crop, or a can and a half of milk to pay for the same amount of labor which one bushel or one can would have paid for in 1910-14. He needed to sell nearly two bushels or two cans to pay the same interest or the same taxes that one bushel would have paid for in 1910-14. Such a discrepancy in prices places agriculture at a terrific disadvantage. Also, if indebtedness were added to this chart, it would have remained virtually constant while prices of things farmers sold fell drastically. It is hard to repay any debt, but when the burden is multiplied by a fall in price so that it takes 50 per cent more labor and capital to repay the debt than when it was contracted, then its repayment is virtually impossible. Yet, since 1930 this has been the debt situation of the farmers of

CHART 2



America. There is no factual evidence that prices move together in periods of great price change. In periods of falling prices, some fall much further and much faster than others, while in periods of rising prices, some rise much further and faster than others. It is this dislocation among prices that is an outstanding cause of depression.

To summarize the effects upon agriculture of these dislocations in prices, chart 3 shows the spread that has existed between the prices that farmers have received, as compared with the prices that farmers have had to pay, plus taxes and interest. Agriculture has been in depression since 1920. There have been short periods when the severity of this depression has been somewhat less as compared with other periods, but it is true that agriculture has been at a marked disadvantage in its ability to buy the things that it has needed since 1920. This disadvantage is the essence of the agricultural depression, and agriculture will not be out of the depression until this handicap is eliminated.

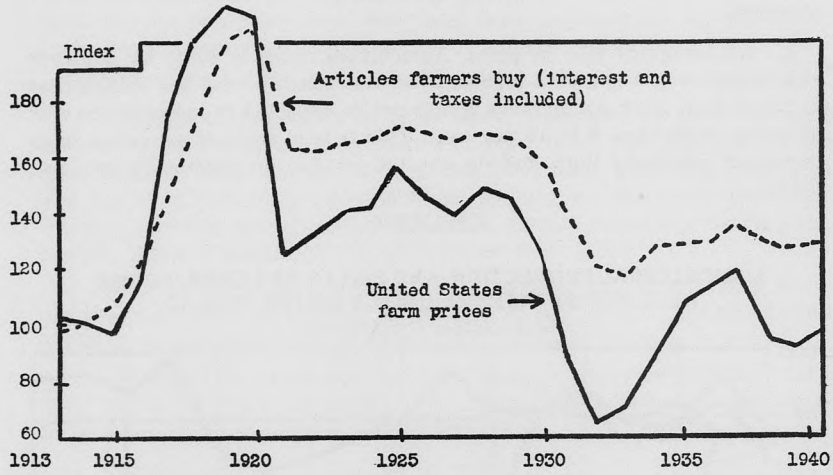
All that has been said has been for the purpose of making one point that may be extremely important to agriculture within the next year or two. If the Federal Government decides that as a war or defense measure, price fixing is necessary and agricultural prices are fixed at their present relationships with other prices, then agriculture has been definitely frozen into a depression position. Agricultural organizations should have clearly before them the facts in the three charts which have been shown. The Farm Bureau and other agricultural organizations should take the leadership in seeing that all the facts in this situation are clearly known and

understood. A development such as has been indicated would certainly not be for the welfare of agriculture, nor would it be for the welfare of the country as a whole.

CHART 3

UNITED STATES PRICES OF FARM PRODUCTS AND PRICES OF ARTICLES FARMERS BUY

(1910-14 = 100)



Source: Farm Economics

Local Market Price Report (U. S. D. A.)

It may be well to digress a moment to bring out one point. Most of the action that we have taken in this country to overcome the agricultural depression has been based upon adjustment in production. The fourth chart shows how total agricultural production in this country and agricultural prices and income moved together during part of the 20's. Then in 1930 prices fell with great rapidity and agricultural income fell with prices. In the years that have followed, prices and income have been very low, but there has been relatively little change in production. If the key to the situation is adjustment of production why have prices and income shown so little relationship to production? This raises the question of continuing to think in terms of adjustment of production as the key to agricultural prosperity.

Returning to the main theme of what is ahead, the future trend in prices is the most important single feature. This trend is largely dependent upon two unknowns. The first of these is the continuation of the World War, and the second is action by the Federal Government. An

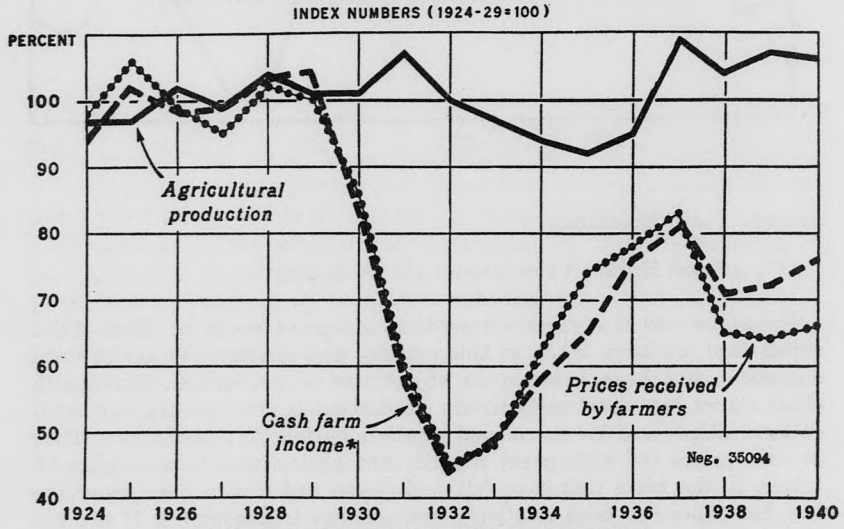
immediate cessation of hostilities would undoubtedly greatly affect the present boom in industrial activity. Action by the Government in fixing prices will, of course, tend to freeze anything in the status quo unless careful discriminations are made.

The two assumptions that seem most likely are: first, that the war will continue for some time with increasing intensity; and second, that there will be no immediate price fixing on the part of the Federal Government. Using these assumptions, the following situations are to be expected:

1. An irregular rise in price. Agriculture needs a 30 to 40 per cent rise in prices to regain its former price relationship with the things that it has to buy. Such an increase would not be expected to increase the cost of living more than 6 to 10 per cent. This is true since retail prices have remained relatively high and do not fall or rise as drastically as farm prices.

CHART 4

AGRICULTURAL PRODUCTION, AND PRICES AND CASH INCOME RECEIVED BY FARMERS, UNITED STATES, 1924-40



*EXCLUDING GOVERNMENT PAYMENTS. BEGINNING 1933 TENTATIVE ESTIMATES FOR 1940

2. The immediate problem in Maryland agriculture will be the scarcity and high cost of labor. With agricultural prices remaining low it is going to be difficult for farmers to obtain the necessary labor to operate their farms.

3. While the net import-export trade in food products is unimportant, when compared with the total income to farmers, the loss of export markets for certain products will harm the producers of these products. Cotton, tobacco, fruits, wheat and lard are the products which are most adversely affected by the loss of foreign markets. The producers of these products will undoubtedly try to make adjustment that will have a disturbing effect upon all agriculture.

4. The domestic demand for food is the most favorable that it has been in a decade. Since most Maryland farm products are for home consumption the present outlook justifies reasonable optimism.

Certain specific adjustments on Maryland farms can be suggested:

1. Increase the efficiency of farm labor. Maryland farmers will need skilled management, good animals and good land. The business on the farm must be large enough to keep the labor force profitably employed. The use of labor-saving equipment and the use of commercial fertilizers which apparently are abundant and should remain relatively low in price, are two ways of increasing the efficiency of farm labor.

2. Improve farm buildings and farm equipment. This means keeping the farm plant as efficient as possible. It can be said that an efficient agriculture is a vital part of an adequate national defense program.

3. Get debts in shape and build up financial reserves for the "rainy day." Debts will be easier to pay with rising prices. Refinance your long-term debts at the prevailing low interest rates.

4. Support sound cooperatives to assist in solving the problems of marketing and production. For example, cooperatives can help to keep milk prices in adjustment with cost and demand.

5. Avoid general over-expansion or drastic changes in your farming plans. Base your plans on conservative expectations of what will take place for a period of years rather than on present temporary conditions.

6. Support the Farm Bureau and other constructive farm organizations. Agricultural organization is indispensable to supplement individual action in solving agricultural problems. Keep our agricultural organizations virile and growing.

7. Make full use of agricultural education and research. The best farm and home management are always important, and in a period of drastic change are more important.

In conclusion, the following statement which likens the way you manage your farm to the way in which you drive an automobile seems pertinent. After a period of slow uncertain driving, resume speed, but keep your car under control and watch signs along the road. Remember, the road is still under construction.

MR. BLACKBURN: Thank you, Dr. Corbett. At this time there is an item on the program for music. Our song leader is Mr. McKnight, of Dorchester County. He seems to think he was not introduced this morning.

MR. MCKNIGHT: Some one on a farm was complimented for her soft soap, and she said the best thing about her soap was that it had so much lye in it. I think at this time we will sing the song of the Farm Bureau.

(Music)

MR. BLACKBURN: Our next address is on "Problems of Medical Care in the Counties of Maryland," and I am sure that there is no other organization any more interested in medical care in Maryland than the Farm Bureau. At this time it gives me great pleasure to introduce to you Dr. Maurice C. Pincoffs, Chairman of Committee on Medical Care.

PROBLEMS OF MEDICAL CARE IN THE COUNTIES OF MARYLAND

DR. MAURICE C. PINCOFFS
Chairman, Committee on Medical Care

I want to talk to you informally about some of the problems connected with medical care in the counties to which the Committee on Medical Care has given a good deal of attention during the last year. Forty years ago medical care could be very well dispensed by the practicing physician with the resources and facilities in his office and an occasional trip to the city in connection with some unusual case. But medicine has advanced a great deal in 40 years, not only in efficiency, but also in complexity, and its complexity is in part made up in the fact that the physician alone and with the resources he carries in his office can no longer furnish adequate medical care in accordance with the standards of this time. It happens that in addition to the physicians, in addition to dental care and nursing, it requires apparatus in the way of laboratory care, hospital care, proper health care in the way of a health program that people of the country get in any form. Particularly necessary medical care can be obtained in some of the more prosperous counties, not only in Maryland, but all over the United States.

The progress of medical care during the last 40 years has been satisfactory. Medical care has been able to keep abreast of the advance in many of the counties of our State, but while in those counties which are more prosperous this advance has been possible, it is also true that in some of the less prosperous counties, though the population has not decreased, there has not been any advance in the level of medical care, or very little. The complexities of this problem, if one wishes to raise the level of medical care, have been great and it would not be very feasible to attempt to discuss all aspects of it, so I will devote my time to talking particularly about three aspects which affect medical care in the counties of Maryland.

The first of these I feel is the department composed of well trained physicians, dentists, public health officials, nurses, and all authorized medical personnel.

The second is where there be available the facilities that will enable them to practice a modern form of medicine.

The third is the administrative problem connected with organizing a medical care program.

The Committee has made some study during the past year of the possibility of a supply of adequately trained physicians for the counties of Maryland. I would like to point out first the increasing complexity of adequate medical care. It requires more personnel than it did 40 years ago, more work per patient is done to give the medical care of today than to give it 40 years ago. During the period of 1909-38, for which we possess adequate figures, in those approximately 30 years the number of physicians in the counties has increased, but the population in the counties has increased more than the percentage of doctors. If you divide up that population by the physicians, you find that each physician today in the counties has 15% more patients to look after than did his forefather in 1908. Another interesting thing that we found in the study is that a tendency has developed for physicians to settle in the larger towns in the counties. Our maps show what areas in the counties did not have a physician within ten miles, and what areas did not have a physician within five miles. It is very interesting to note that the amount of territory which has no physician within five miles has very considerably increased in that period of time, and the amount of territory which had no physician within ten miles, very small in 1908, is quite large today. This indicates a greater tendency on the part of the physicians today to go to the larger towns and cities than in 1908.

In 1908 there were in Maryland a number of towns, I think nine, that had ten physicians or more in the town, only nine of them in the whole of Maryland—whereas by 1938 there were eighteen such towns—I am sorry not to be quite certain on those towns, but that is approximately accurate. The number of doctors in towns that contain ten doctors or more, only 20% of all the doctors in 1908, over 50% of the country doctors today. This settling in the towns like Annapolis, Frederick, Hagerstown and Salisbury, and the withdrawal from the more rural part of the counties has some very good points, and indeed they could make a good argument for it. Those doctors who come in there have more medical facilities, they are near the hospital. That method of consolidation has its good points. With good roads they can go out and call on people in the more rural homes. But those people would rather have the doctor a little nearer. If he were nearer, they would not hesitate to call on him, but if he is so far away, they often take a chance and wait, and sometimes that delay is unfortunate. Many troubles, if taken in the early stage, might not be serious, but even the next day may make a great difference, then not so much can be done.

This tendency has developed, and it has a meaning. It means the doctors are not satisfied to be out in the more rural sections, that they want to be nearer facilities and hospitals, they want to have some chance

of getting a surgeon to see such and such a case. One thing that showed up in this study was disappointing. We found that the trend is for the younger men going in the counties to go to the larger towns, the more prosperous towns. You can find out by that study how many men under 40 there are in the various counties. We do not pretend to get entire accuracy in our study by comparing the counties with the largest number of people paying income tax with the number of young doctors under 40 going into those counties in the last ten years. We do find that the counties having the greatest number of income paying people have today the young doctors, and the counties not paying income tax have no young doctors. The tendency is there without a doubt, and it is very understandable.

I cannot give you accurately entirely the age of doctors in counties, but I think very close. In 1908-9 there was one county in Maryland over one-third of whose physicians were over 60 years of age. If you take the age of doctors late in the twenties until last year, they were well into the sixties. There were more than one-third over 50. In 1938-39, out of the 23 counties, over one-third of the physicians had passed the age of 60, and in one county 13 out of 23 were over 60; in another 8 out of 12 physicians were over 60. That simply means that really young men do not want to go to those counties. There is going to be a great shortage of physicians before long in those sections. It also means that the counties the majority of whose physicians are over 60 years cannot count as having adequate medical care, for those physicians have been practicing many years since they graduated, and practicing those years far from medical centers. They cannot be expected to furnish the high level of medical care one could desire.

Many medical doctors come from the country, and why do they not go back to the country? They would have far more individual practices. They are lost in the hundreds in the city. What keeps them from doing it? That is not a hard question to answer. I have had a great deal of personal experience in teaching medicine, and talking to young doctors, and when I asked them why they did not want to go back to the country, they would tell me that they could not make a living there, certainly not as good as in the city. If they looked over the State and counties, they found so many places where they would get a lot of indigent patients to look after without recompense, and a young man there would have very little chance, because the older doctors would have the people who could pay. They had to spend three or four years in college, and then four years in the medical school, and probably a year or two or three around a hospital, learning how to practice in modern medicine. What would they have in their offices? There would be no hospital within 20 miles or 10 miles, and even then, very little in the way of laboratory—it would be old-fashioned in its methods. If they remain there for five years or more, they would have to stay there all their lives, as they would have lost touch with modern methods. It is a very serious problem for those living in those communities. That is what is keeping young doctors away

from those sections. They cannot make the living that they can make in a large city, and they feel that they are going backward. They have no contact with education, and every doctor today knows that you must keep up with modern methods and really learn all the time.

What I have said about medical doctors applies also to dentists and nurses. If they go to the country, they fall behind in modern care. Most of the people in those sections are not able to pay their doctors, many of them are on relief, and the doctor is the last person they will pay. In fact, they only will send for the doctor in serious cases, if they feel they have to pay him. He will have to care for a lot of people as best he can. When it comes to giving those people the care that any doctor really wants to give his patients, he might have to do it entirely at his own expense of time, and even in some cases of medicine, also. And under those circumstances we can hardly blame the young doctors for not wanting to go there. How are we going to meet that need? I do not know. We are going to have to pay doctors for the care of the indigent, and arrange for that in some way, either by group insurance or what not, so that the people at present unable to pay will be furnished some medical treatment in the counties, or we are going to have a constantly increasing scarcity of medical doctors in those sections.

The second subject I want to touch upon is the problem of hospitalization. We have in Maryland in the county hospitals a considerable number of beds, perhaps inadequate, and they fall into a number of different categories. We have four hospitals running from 100 to 150 beds; five hospitals with from 50 to 100 beds, and we have seven hospitals, small county hospitals, under 50 beds in size. That makes a total of from 12 to 16 hospitals in 23 counties. Is there a place for a small hospital of 20, 30 or even 40 beds out in the rural districts? I feel there is, most decidedly. Many of them are more than two hours away from a large medical center, and they need a hospital of their own, and the reason for that is easy. Not only does it furnish a type of medical care nearer at home and at lower cost, with less separation from the family, but it furnishes to your doctor an attraction for being there. It keeps him a better doctor, keeps up his skill, he is being taught through his hospital, keeps him up with the times. He has a laboratory. I think those hospitals of that small size are now serving a very useful purpose throughout the State, but they are having their difficulties. One difficulty is that a great many of the county people prefer to jump over the hospital nearest and go into a larger center, maybe to one of the larger hospitals in Salisbury, or Frederick, or even all the way to Baltimore or Washington. There is some justification for that because these smaller hospitals are not as well equipped, they lack certain facilities that the larger hospitals have, and everything that a place that calls itself a hospital ought to have. It should be everybody's business to see that they do have those facilities. That needs organization.

We have started a scheme for arranging for three small hospitals in the counties, in conjunction with the State Board of Health. That will

cost those hospitals just about one-half as much per year as it would cost them individually. We want to install adequate laboratories. I cannot go into details, but there are so many things that can be done to improve those small hospitals, to have them adapted to the care of certain types of hospital cases, the removal of tonsils, for labor cases, emergencies from accident or what not that require medical care, for the care of pneumonia, all fevers of any type. We ought to organize these small hospitals, to define what their proper function is, help them to get the equipment necessary, help them to do the necessary work for their own particular, individual community, so that the people may get the help they need without going to the highly specialized doctors in large cities. There is a great deal to do in helping those hospitals carry out their functions.

I do not want to say anything about the State tuberculosis hospitals, or the psychiatric hospitals—that is all under legislation—but I would like to say something about a proposition to build hospitals, one on the Eastern Shore and one on the Western Shore for the care of chronic diseases. It is felt that in time those will largely replace the present almshouse system. As I have gone over the State and talked to physicians, I find that there is a very definite need for a hospital of that kind, not a great need, no physician has 50 cases, but each physician may have two or three cases of chronic diseases that he knows he cannot give adequate care, and many times those cases might be rehabilitated if there was a hospital that would take them. As it is now, no hospital will take them because they are long-term cases. If you bring in a child of 15 or 16 with a chronic fever, or a still active infection of the heart, the City hospitals will diagnoze the case, keep it a week or two ,and then send it home. They will say, "That case ought to have hospital care for six months more, but we cannot keep it." Sometimes a case comes to the hospital in Baltimore with a sub-acute form of arthritis, joints swollen, running fever, and the general hospital will keep that case long enough to study it, long enough to see whether this or that local infection is found, but when the real case is started, it is sent home. They cannot keep cases. That case might need nine or ten months to cure it. The general hospital has to turn away many people that need hospital care, as it cannot keep them; such cases are scattered over the counties, as well as in Baltimore City.

There are many cases of people who are simply senile chronics, not really ill, but unable to be looked after in their own homes or in the community, and they are not hospital cases. They are indefinite cases. They might stay in their own homes and only get a little worse, but they should go into an infirmary, in a hospital for chronic diseases. We have a plan to build in one or two sections a hospital for those cases, for the care of chronic sufferers—that would be a great step forward. We have not planned to meet the whole need of the State, but have planned in rather a modest way to see how it grows and what the demand is, but I believe the experiment is certainly worthy of the support of the people

of the State from what I have seen in the small way of some of the almshouses and what I know of them through the investigations made by others. I think that the best of them are merely inadequate for the purpose, and that the worst of them are a disgrace to the State. I hope this method does not contemplate abolishing them, but suggests rather an alternative. I believe the wishes of the people of the State, when they see what can be done for those people, will be for the construction of these hospitals for the chronic sufferers and closing a large number of almshouses.

Lastly, I would like to call your attention to the third point—that of administration. Is it not surprising that with departments for almost everything else for the life of the people of the State of Maryland there is no legal authority for anybody to look after the medical needs of the indigent? We take great pains for their social hygiene, and about providing them with various forms of relief. That is right. We should furnish that. We furnish them also with free education and with this and that, but with one of the things that is, after all, one of the greatest causes, and calls for support more than anything else, to save them from pain and suffering, especially among the indigent, there is no legal authority. There is nobody who is legally equipped to see into those cases. What does that mean? It means that because it has been nobody's business, there is no system whatsoever by which it is looked after. You can go to the Welfare Boards, they cannot give you any medical care; go to the Board of Health that does splendid work in certain fields of medical care, but ask them about this and they know nothing about it. Go into the different counties—there is some arrangement when a horse is sick, but when the people are sick and there is no money to pay the doctor, what can they do? Of course, they call the doctor anyway, and in many cases they get help, but if they cannot get a doctor no one is at all responsible for it. They cannot call the County Commissioners or the county police, or the nearest public health officer. They may call anybody they want—but there is no central place of legal responsibility for doing a single thing for them, only through the kindness of the profession, when it is available. It is only through the good offices of somebody who has no responsibility, but who takes it upon himself to go around and pay some doctor to come and do something that such cases are looked after. I hold that is a very poor way of handling the problem that so vitally interests the life of all of us. That would be one of the most important steps forward, if we are to try to care for the medical cases among the indigent—place the responsibility in some definite hands. I do not mean socialized doctors—I mean some definite organization in each county that sees that medical care is available, is applied when demand arises for it.

One must realize that these conditions are only going to be changed very gradually, and as the people of the State want them changed. I hope that a step forward was made when the State Planning Commission was authorized by the Governor at the request of the medical pro-

fession to form a committee to study the problem for a few years, and that committee will confer with the doctors, the Welfare Board, the County Commissioners, and perhaps with some of you, in trying to get the point of view of the people at home as to how much they want, what they think is the best way to improve those conditions as they at present exist. I hope all of you will cooperate as far as you can in this attempt to get the facts in the case and on those facts to build a program for better medical care. Thank you.

MR. BLACKBURN: Thank you, Dr. Pincoffs. Our next speaker is Reverend C. S. Hubbard, Pastor of First Methodist Church in Asbury Park, N. J. I was asked the question why we have a minister from New Jersey, and I found out he is a native of Dorchester County.

"UNITED"

REVEREND C. S. HUBBARD

I am an Eastern Shoreman, and whenever I come to Maryland I feel very much at home. Some day I am coming back to stay in Maryland; I am not sure when that will be. I saw a note the other day of the birth of a little boy, and the sister of the little boy went out to tell the neighbors. She said, "I am not sure whether he is going to stay or not, but he has his things off!"

A colored gentleman was asked to ride in an airplane. When he came down, he walked up to the aviator, and he said, "Thank you, sir, for them two rides." The pilot said, "Why do you say two rides? You only had one." "Oh, no, sir, it was my first and my last."

That reminds me of the farmer who went to the place where the airplanes were who take people up for short trips. He asked the pilot how much it would be to take him and his wife up. He was told it would be ten dollars for the two. He said, "Oh, I cannot pay that much." "Well," said the pilot, "I cannot cut my price, but I will do this. I will take you and your wife up for nothing, if you do not say a word until you are down on the ground. If you say one word, though, it will cost you the ten dollars." "Well, they got in and went up and the pilot did everything he could in the way of loops, and so on, to make the farmer talk, but finally he gave it up and came down. He said, "You got me, I did not hear you say one word." The farmer said, "No, you did not, but you nearly caught me when the old woman fell out."

I am a little behind time, and I will try to get through on time. I want to bring you the message that I chose. Now, what is meant by "United," the subject that I chose? I could have taken nothing that I wanted to talk to you about more than that subject. That is what we need in America, it is what you need today, the right kind of unity. Unity of spirit and feeling. That is what we need in America today. We need unity for the common good, a sympathetic understanding of men for men, of group for group—that will mean a better life for all of us.

Just a few weeks ago the President of the United States leaving Warm Springs, Ga., said, "I will return in March if the world survives." That was a terrific statement for him to make. I have no idea he was trying to terrify anybody. I have no idea he was speaking without hope—I think he meant to say to America that our world is in such a state today that within three months it might go over the precipice and the civilization that we have known and loved may be no more. At least, when a man who knows what is going on in the world makes a statement of that kind it means that we are living in a perilous age, when we need to get rid of dis-unity, and hate and suspicion, and learn to cooperate, to unite for the common good and for the salvation of our civilization. It is either that or destruction.

We need understanding; that is what we do not have. That reminds me of the little boy and his father. They had a session in the woodshed one day, and after the session the father said, "Now, I want you to tell me why I thrashed you." The little boy whimpered and said, "It is just that way. You whacked the life out of me, and then you don't know why the Hell you did it." My own boy got into a discussion with his mother, and I called him in my office, and talked matters over with him, and told him he must say he was sorry. He said, "All right, Dad, I am sorry, now what did I do?"

We do not get together. We do not understand. If we are going to have a good, strong civilization in this world, we must begin to unite, to cooperate, to understand one another, to live together as men of good will. When this understanding and unity of spirit and purpose is effected, the world will be a better place than it is today.

I want you to look a minute and see what happened—in the first place, you get a world of war, a lack of understanding. We are told that the Treaty of Versailles, with its unfair treatment of Germany, is the cause, but I doubt that very much when we see how Germany was able to arm so as to menace the whole world in such a short time. It could not have been so unfair to her. I do not think we should blame ourselves for all the measures in that Treaty. We were only one of a group around the table. But the hate of Germany for the Pole, for the Czech, and the English, and other nations, shows a dis-unity. That is the cause of this war, that and nothing else.

What happens within a nation when dis-unity exists? France today lies supine, in just a few days she lost. We had always been told that France had the finest army of fighting men in the whole world, yet she was absolutely crushed in a few days. There were upwards of thirty political divisions within that nation, each one hating the other, and what happened? They should have united to fight the common enemy. Look at our own depression. Nobody suffered in the depression more than the farmer. What was the reason for our depression? You cannot destroy millions of property assets, of food supply, without having a depression. We suffered for ten years because of a lack of cooperation, a lack of

understanding, of willingness for one group to work with another group. We were told we have an over-production of wheat and corn and wool and potatoes. I don't believe that. I believe we had a serious under-consumption. People were hungry, people were naked, and people suffered in poor houses, who, if they could have possibly gotten the food and the wool that you raised, we could have destroyed that depression almost overnight. If we could just have gotten united and learned how to distribute the goods that we manufactured and gone upon our farms and distributed that food, the depression would have ended.

That reminds me of two colored boys who found a watermelon patch, and the little boys ate and ate watermelon. They ate so much that one of them was taken sick and died. Someone said, "Poor Sam! Poor Sam! What killed Sam?" "Too much watermelon?" "Oh, no," said one little boy. "There ain't too much watermelon in the world. It was too little boy." That has been our difficulty during the depression. A perfectly ridiculous under-consumption; there was no need to destroy and curtail production. There was a need to distribute and use the bounty that this land is able to produce. There was a lack of unity all over the country.

I was particularly interested in the statement of Mr. Wise supporting Mr. Roosevelt in his lend-lease plan. It does not matter what my political party is. He is my President now, whether I voted for him or not, and all of us should unite on that plan. If the farmer starves, the people go hungry. They should cooperate with each other. In days gone by I know they were a hard-headed lot of individualists, they would not cooperate. I remember one time a friend of mine had a lovely lot of produce and he sent it to Baltimore and later he got a bill which ate up all the profits. I asked him, "Why in the world don't you farmers get together and stand out for your price?" He said, "We tried that once. We hired a fellow to go to Baltimore, and he robbed us, and so we just gave up." I tell you, you have got to cooperate, to unite, to work together in order to succeed. There was a big, husky colored fellow helping to unload a ship at the wharf; he got two heavy anvils, one under each arm, and started to take them off, but he fell overboard, and he went down twice, when he came up he started to go down the third time, and he yelled, "Throw me a rope! If you don't, I will jes' be compelled to drop one of these anvils." You must unite hands and hearts together for the common good.

In my judgment, the farmer suffered more than any other man. I don't mean farmers like your group here. Farmers generally have been in a tight place ever since I can remember. Now, why is the farmer in this tight place? Let me suggest two or three things. First, the farmer works hard. I don't know anybody who works harder. Even on the days when he does not work he has to go back home and milk the cows. He is intelligent, he has the finest schools in the land. He has the agricultural colleges, and the Agriculture Departments of his colleges have trained him to the last minute. He has the education, he has the government and the State organizations. He has the best opportunity of any group of men on earth, but some of the farmers do not use their opportunities. A man

went to a farmer to sell him a magazine, and he told him, "If you buy this magazine, it will make you a better farmer." The farmer said, "Lor' me! I know a whole lot now that I don't use." He has the finest machinery on earth. Then, why do they have a hard time? Is it because of a lack of unity within the farm group and the lack of unity between the farm group and other groups within the nation. I rejoiced when I heard down in Dorchester County that you were going to have the National Convention in this city. I rejoiced in that the Farm Bureau, and the Grange, were working together with the National organizations. That is all helping. But we have got to get together as a group within ourselves, and with other groups for the common good.

I pay enough for what I eat, but you don't get enough for what you grow. I wish I had been here to hear all of the talks. I pay 18 cents for Grade A milk in New Jersey. That is enough for me to pay. A man with a small wage and a big family cannot do it. He has to let his children drink a lesser grade of milk. But you cannot get 18 cents a quart for your milk. If you could do that, we could eat a lot more and better, and you could live a lot better. You could get rid of those old mortgages. If we could only get together, to unite.

You remember old Aesop's fable about the four oxen who lived in a field, and a lion prowled around and tried to get the oxen, but they stood together, tail to tail, and the only thing the lion could get at was the horns. But one day they had a disagreement, and fell apart, and the lion cleaned them up one at a time. We should stand together. United we stand, divided we fall. "If two lie together then they have heat, but how can one be warm alone?" "If one prevaileth against him, two shall withstand him, and a threefold cord is not quickly broken."

I would like to be an evangelist and go up and down the earth shouting for men to unite. The only way for men to unite is the whole-hearted way—not as in Russia, where if they did not cooperate they shot them; not as in Germany, where they had to cooperate at the hands of secret police; nor, as in Italy at the mercy of the castor oil bottle. Unite as free men, with sympathy, understanding You have got to have freely given cooperation of men of good will in order to have peace and happiness and prosperity. It must be the unity of free men.

Farmers must unite with each other for their own good, and must unite with all other groups within the nation for the nation's good. We must be one people with one President. As I said before, he is my President! I did not vote for him, but he is my President! It is my flag! It is my Constitution! We must be one people. No man must be persecuted because of his color, his language or his faith. Religion should be a uniting influence. We may have different points of view, but we must agree to disagree about our differences—Jews, Catholics, Protestants and infidels—everyone must be recognized and respected, and permitted to believe what he will, and in religion there must be no disuniting force. One flag, one language and purpose! A free, a happy people, because we are united! United! United! for the common good.

Last year about this time I started to take a trip. I drove over 5,000 miles to Chicago, went down to New Mexico, over to Florida. No matter where I went, in the hills of Pennsylvania, in the prairies of Illinois, the bayous of Louisiana, and the everglades of Florida, I found everywhere in America three great uniting influences in every community. I found the church, the school house and over them the flag, always the stars and the stripes. The church to guard our morality. You remember George Washington said, "We have got to have morality in our army." We must have the school house to make us understand. And over all united the red, white and the blue—one people, one language, one purpose, America, America and Freedom!

MR. BLACKBURN: Thank you, Reverend Hubbard. I am sure that was a very fine address. Listening to what happened to that farmer's wife, I know now what happened to Earl Keene's wife—she fell out of the airplane. Mr. Wise will now make some announcements.

Mr. Wise gave the announcements, and the meeting adjourned.

THURSDAY EVENING

The annual Farm Bureau banquet was held at 6:30 P. M. on January 16. H. R. Shoemaker proved to be an excellent toastmaster. William Dern, the principal speaker, talked on "Dividends of Laughter," and entertained the guests for nearly an hour.

Prizes were awarded for membership solicitation in the state contest as follows:

Men's Contest

Francis G. Schwaninger, first.....69 members signed
John Hersh, second.....53 members signed
William Petzold, third.....51 members signed

Women's Contest

Mrs. F. D. Zeigler, first.....30 members signed
Mrs. J. A. Fowble, second.....24 members signed
Mrs. Seeds Grosscup, third.....18 members signed

County awards were presented to the following:

Howard County Farm Bureau for largest percentage increase in membership in 1940; Carroll County Farm Bureau for largest numerical increase in membership in 1940; Kent County Farm Bureau for largest percentage of farmers in Farm Bureau, 1940.

Everyone present enjoyed the music by the Victor Herbert Octet.

The program closed at 9:30 P. M. with a Citizenship Ceremonial directed by Milo Downey and enacted by the 4-H Boys and Girls.

FRIDAY, JANUARY 17, 1941

Annual Meeting Maryland Farm Bureau, Inc.

Chairman—P. C. Turner.

MR. TURNER: Will the delegates please come forward and be seated The meeting will please come to order.

We will now have Mr. Wise read the call to this meeting.

Mr. Wise read the call.

To County Secretaries and
Affiliate and Associate Secretaries.

Notice of Annual Meeting of Members of Maryland Farm Bureau, Inc.

Dear Sir:

Official notice is hereby given you that the Board of Directors of the Maryland Farm Bureau, Inc., has authorized the calling of the next meeting of the Corporation for January 16 and 17, 1941, Lord Baltimore Hotel, Baltimore, Maryland; the meeting to continue from day to day until all business that may come before the meeting has been properly disposed of. All sessions of the annual meeting will be held in the Ballroom of the Lord Baltimore Hotel.

Very truly yours,

C. E. WISE, JR., *Secretary-Treasurer,*
Maryland Farm Bureau, Inc.

CEW:MKS
Enc.

MR. TURNER: We will now have the roll call of voting delegates.

The roll call was given as follows:

ROLL CALL OF VOTING DELEGATES

Allegany—Harry Barton; *Anne Arundel*—C. O. Dulin, Winterson Prout, O. A. Sansbury; *Baltimore*—Daniel Pearce, A. I. Bell, Charles L. Hammond, J. W. Ensor, Charles Chilcoat, Crist Bridenbaugh, John Huck; *Calvert*—John C. Ward; *Caroline*—F. D. Zeigler, F. M. Adams, F. M. Stevenson, C. J. Kern, N. E. Taylor; *Carroll*—William Basler, Harry I. Rinehart, George B. John, Paul Green, John S. Barnes, C. H. Shaw, Mrs. Carroll Rinehart; *Cecil*—Helen B. Astle; *Charles*—Robert J. Martin, William Petzold, Mrs. P. D. Brown, George A. Carpenter, Mrs. Xavier W. Garner; *Dorchester*—Melvin Milligan; *Frederick*—U. J. Eiler, Emmons C. Sanner, E. Earl Remsburg, Steiner W. Whitmore, Austin Zimmerman, Frank Stauffer, Harvey Ramsburg, John L. Smith, E. M. Hamilton, A. M. Pitzer, Roy Shaffer, Ridgely Flook, Mr. Duvall; *Garrett*—Wayne Hamilton, Samuel L. Otto; *Harford*—A. G. Ensor, J. Charles Rutledge, S. H. Anderson, Mrs. Davis, Miss Estelle Everett;

Howard—H. Jones Baker, G. Cashell Nichols, Herbert Wessel; *Kent*—Mrs. William R. MacCubbin, Frank Sutton, Mrs. William E. Greenwood, Mrs. Henry Watson, H. S. Startt, Harry Williams, L. A. Sutton, Mrs. H. S. Leaverton; *Montgomery*—J. W. Jones, Willson C. Poole, Ulysses Griffith IV, Mrs. Alice Hostetler, Mrs. Ward Fulton, Mrs. Edwin D. Fry; *Prince Georges*—Wm. E. Duvall; *Queen Annes*—T. J. Walbert, Gordon Shawn, C. I. Boyle; *St. Mary's*—J. Bernard Goodwin; *Talbot*—T. C. Schwaninger, A. H. Spies, A. D. Miller; *Washington*—William A. Cunningham, J. K. Funk, J. Hugh Warrenfeltz, Robert Sulanke; *Wicomico*—Glenn Catlin, Norman Twilley, James Denson, Elmer Ruark, Frank Wimbrow; *Worcester*—Rillie P. Dennis, C. C. Pilchard; *Associated Women*—Mrs. J. K. Funk, Mrs. Sterling Little, Mrs. Frank Hayden, Mrs. Dennis Reed, Mrs. Clarence Kern, Mrs. Leon Spicer; *Maryland Crop Improvement Association*—Lawrence Ensor; *Maryland Horse Breeders Association*—Charles L. Hammond; *Maryland Cooperative Milk Producers, Inc.*—Wilson A. Heaps, John S. Bushey, Jacob E. Carl; *Maryland Tobacco Growers Association*—X. W. Garner, Sr.

Voting Directors

Anne Arundel—O. F. Grimes; *Baltimore*—F. Ridgely Todd; *Caroline*——Richard Blackburn; *Carroll*—John D. Young; *Cecil*—D. B. McDowell; *Charles*—S. C. Linton; *Dorchester*—Earle R. Keene; *Garrett*—William Winterberg; *Harford*—Fred C. Jones; *Howard*—Roby H. Mullinix; *Kent*—H. S. Leaverton; *Montgomery*—James D. King; *Queen Annes*—Merton R. Shawn; *St. Mary's*—F. Harvey Bailey; *Somerset*—William T. Chaffey; *Talbot*—Francis G. Shillinger; *Washington*—Roy C. F. Weagly; *Wicomico*—Claude C. Phillips; *Associated Women*—Mrs. Edwin Fry, Mrs. Harry L. Davis.

Honorary Non-Voting Directors

Maryland Ayrshire Breeders Association—A. I. Bell; *Maryland Crop Improvement Association*—Lawrence E. Ensor; *Maryland Horticultural Society*—G. Rust Canby; *Maryland Cooperative Milk Producers, Inc.*—R. W. Shermantine; *Maryland State Poultry Council*—Harry H. Rieck; *Maryland Vegetable Growers Association*—F. Ridgely Todd.

MR. TURNER: We will proceed with the meeting. Mr. Wise will read the minutes of the last annual meeting.

Mr. Wise read the minutes.

MR. TURNER: You have heard the minutes. Any additions or alterations? If not, the minutes will stand approved as read by Mr. Wise.

Mr. Wise will now give you the Treasurer's report.

Mr. Wise gave the Treasurer's report.

MR. TURNER: Does anyone wish to ask any questions about that report? Any further explanation? If not, I am ready to entertain a motion.

Mr. Griffith, of Montgomery County, made the motion the report be accepted and filed as read; Mr. Shillinger seconded the motion and it was carried.

MR. TURNER: We will now have the report of the Audit Committee.

Mr. Chaffey, Chairman of the Auditing Committee gave the following report:

January 14, 1940.

Mr. President:

Your Auditing Committee met with Mr. William R. Dance, Registered Public Accountant, and checked the Treasurer's Report with the Books and Accounts of the Maryland Farm Bureau, Inc., and find them accurate in every respect. The securities in the bank box correspond with the account.

All bills for 1940 that have been presented have been paid.

In spite of the rather heavy outlay for the National Convention, the report shows remarkable progress for our state organization. The officers should be commended for their handling of the state affairs.

WILLIAM T. CHAFFEY, *Chairman.*
W. P. EVANS,
O. F. GRIMES,
ROBY MULLINIX,
JOHN D. YOUNG,
ELLIS BOWEN.

Mr. Linton, of Charles County, made the motion that the report be accepted as read; Dr. Huck, of Baltimore County, seconded the motion and it was carried.

MR. TURNER: We will now have the report of the Joint Tax Committee, read by W. Paul Walker. This report will not be read in full. You may take it home and read it over. We will only have the high spots touched upon by Mr. Walker.

MR. WALKER: I call your attention especially to the fact that farm taxes have increased, and rather constantly since the 1934-35 depression peak. The fact that the property tax rate continues to rise is a good reason why we should be constantly on the watch for the increase in cost of local government, and the further fact that farm taxes have increased in the last five years indicates to me that we should take a vital interest in local affairs, so that our property taxes will not increase any more.

I have always felt that a dollar tax rate constitutes as much burden on farmers as is rightfully theirs, not only because of the property tax itself, but because of the characteristics of the property tax as it applies to agriculture, namely, that it cannot be shifted or passed on to the same degree that such taxes on industries or businesses can be passed on. I have always felt that we should not impose any greater burden of taxes

upon farm property as a real estate tax than one dollar per hundred. There has been an increase, as you will notice. Every year I call that to your attention.

One of the regular laws of taxes is that the cost of government continues to rise despite the fact that both Democrats and Republicans have indicated the need for eliminating the State property tax. Farm groups have been working for the elimination of the State property tax, and we are looking forward to the time when we may eliminate it. I feel somewhat disappointed at not being able to use the income tax for the express purpose of eliminating the State property tax. This State is peculiarly situated in the proportion of income to the people in the form of investment and interest. We are not utilizing that as we should. We are asking for that particular feature to be included in the State income. We suggested changes two years ago that are applicable this year in the report of the Joint Tax Committee which is designed for the express purpose of calling upon the citizens of the State of Maryland to contribute an additional tax for the needs of the State to replace the tax upon intangibles.

I think most people misunderstand the income tax. Some organizations misconstrued the taxes as they apply to investments. The investment income tax is not a tax solely in lieu of the old property tax. It is in part an additional contribution upon the part of the taxpayers, a substitute for the old intangible tax.

The suggestion for changes in the State income tax are essentially of the same principle in effect in so far as income tax is concerned. As a matter of fact, the government has gone back to the very principle of income tax suggested by this Committee two years ago, and again repeated in this year's report. Whatever rate you are in favor of is a matter to be determined in the future.

In the matter of administration of property tax laws, the Committee has called specifically to your attention the fact that the present property tax system is administered ineffectively. We suggest various changes to the end that greater efficiency be attained. We suggest that full-time, qualified local assessors should do that work, with a continuous method of assessing, with tax maps, sales data and other material that will assist the local assessor; and an adequate review and administration of the assessment. We would consider that a great improvement.

The committee has expressed its opinion that the present situation in respect to the county contribution for school property should be maintained without specific increase or reduction.

In the case of County roads, we find that during the past two years, the State Roads Commission was not helped by the law passed two years ago regarding the construction of local roads, due to projects that had to be taken into the State system. It was unfortunate that that law was passed two years ago. We recommended essentially the same type of law that we recommend this year, and had the Legislature followed our

report we would have been much farther advanced in our local roads program. Attention should be given to the two-type of construction program—one designed for the construction of low type improvements, building the low cost roads; and the other designed for the construction of roads to go into the State system. We are calling to the attention of the group the fact that the maintenance fund is being considerably hampered by the present method. We suggest the changes set forth in this joint report.

The Committee has recommended that the State Roads Commission have greater powers in respect to condemnation. It is now a matter of exorbitant cost in many instances, and it was thought by the Committee that the State Roads Commission should be given the authority to proceed with construction, where the parties cannot agree, by giving bond, and thus permit claim settlements to be determined and made later by the usual court procedure.

In regard to the inspection of motor vehicles and re-examination of operators, the Committee expresses its sympathy with the efforts and activities of groups interested in decreasing motor vehicle accidents. Many of our accidents are caused by the fact that the motor vehicle itself is not in good operation, or the operator is not in good physical condition, and the Committee felt that probably in the minds of the public there was considerable confusion in the report made. We feel that most of the accidents are due to fast and reckless driving and also because of weather conditions. No accidents should happen because of drunken condition on the part of the pedestrian or of the operator. The report showed that a relatively small percentage of the accidents are associated with causes or conditions that may be almost eliminated by the proposed inspections, and your Committee feels that the present program may be improved in some manner so as to be effective in that regard. We feel that persons involved in accidents, especially when license suspension or revoking follows, should be re-examined and tested for driving fitness.

The Committee felt that the Relief Administration had been very effectual in this State. I think there are no other points I have to bring to your attention.

REPORT OF THE JOINT TAX COMMITTEE OF THE MARYLAND STATE GRANGE AND THE MARYLAND FARM BUREAU FEDERATION, 1940-41

(Preliminary Report)

Trend of Farm Taxation in Maryland

County tax rates applied to farm property assessments for 1940-41 are about the same as for the previous year. The peak in State and county tax rates occurred in 1929-30, when the combined rates amounted to $1.83 per $100 of assessed value. During the depression, these rates decreased to $1.21, but they have since risen to an average of $1.50.

Table 1. *Approximate Tax Rates Levied Against Farm Property in Maryland* 1928-29 *to* 1940-41

(*Weighted average for all counties*)

Fiscal Year	Tax Rate Per $100 Assessed Value		
	County	State	Total
1928-29	$1.55	$0.26	$1.81
1929-30	1.57	0.26	1.83
1930-31	1.56	0.25	1.81
1931-32	1.55	0.25	1.80
1932-33	1.47	0.25	1.72
1933-34	1.02	0.25	1.27
1934-35	0.99	0.22	1.21
1935-36	1.12	0.22	1.24
1936-37	1.18	0.22	1.40
1937-38	1.20	0.22	1.42
1938-39	1.17	0.23	1.40
1939-40	1.27	0.23	1.50
1940-41	1.27	0.23	1.50

In view of the additional functions and costs placed upon counties since the depression, some increase in the county tax rate has been necessary.

Every effort should be made to keep the property tax rates from rising, and reduction should be made wherever possible, in order to relieve property owners and encourage the ownership of property and the development and improvement of same.

In addition, this committee feels that the State property tax rate can be materially reduced by applying a portion of the State's surplus or income tax to the State bond fund, thus making it possible to reduce the State property tax levy by proclamation.

State Tax Revenues

We recommend that the following State taxes, adopted as new taxes or as amendments to existing revenue measures by the last General Assembly, be continued for the next biennium:

1. Amusement tax of 1 per cent of admission paid.
2. Beer tax of 93 cents per barrel distributed for sale or consumption in Maryland.
3. Motor vehicle titling tax, at 2 per cent of sale price
4. Music box license fee, at existing rates.
5. A 2 per cent tax on money wagered at race tracks.

6. A tax of $1.25 per gallon on distilled spirits distributed for sale and consumption in Maryland.

7. A tax of 1½ per cent of the net incomes of corporations.

This Committee feels that the present individual income tax has the following objectionable features which should be corrected:

1. Confusing method of determining taxable net income and tax payable, it being dissimilar to the method for Federal income tax purposes.

2. Unequal burdens on low income group by high tax rate on investment income, especially when all, or the greater part, of small incomes is from investment sources.

3. All of the tax must be paid at time of filing returns.

4. The income tax is an additional tax burden to those whose income is from real and tangible property sources, directly or indirectly taxed, but to a large extent only a replacement of, or substitute for, property taxation of intangibles.

With the above criticism in mind, we recommend the following modification of the individual income tax:[1]

1. That the State income tax law follow as closely as possible the the method of calculating net income as set up by the Federal income tax requirements, with the exception that Federal income taxes paid not be allowed as deductions in arriving at taxable income for State purposes.

2. That the present personal exemptions allowed by the State be continued.

3. That a flat rate of 2½ per cent or less be applied to all net taxable incomes, after personal exemptions are allowed.

4. That a flat rate of 3½ per cent or less be levied on gross investment income, excepting as provided under 5 and 6.

5. That persons whose only income is from investment sources not be required to report the same unless such investment income exceeds $500.

6. That any person's income, the total amount of which is the same as, or less than, the personal exemptions allowed for State net income tax purposes, shall be exempted from the investment income tax. (If there is any doubt as to the constitutionality of this method, then some other method of accomplishing the purpose in mind should be devised.)

7. That payment of the tax be allowed in two installments.

[1]These rates and exemptions mentioned herein are maximum suggested rates, and are subject to change when the Committee obtains more detailed data on the Maryland income tax.

Lack of detailed data regarding the 1939 incomes reported for State purposes makes it impossible to offer more definite recommendations at this time. (December 3, 1940.) These matters will be given attention at a later date and will be incorporated into the final report.

While we believe that some reduction in the State income tax is advisable, especially as it applied to the low income group, we feel that the revenue from this source should not be drastically curtailed. About $2,200,000 of such revenue is for the purpose of replacing the property tax on intangibles, and any reduction in the income tax for such purpose would tend to raise the property tax rates. Furthermore, it would be better to employ this tax as a means of reducing the property tax for State purposes, which would give tax relief to 200,000 property owners. Finally, part of the income tax revenue, together with part of the State surplus, could be used to supplement the State road construction program, which is lagging behind the needs, especially in view of the national defense program under way.

Changes in the Administration of Tax Laws

In previous reports this committee has pointed out the necessity for improving the administration of the tax laws, with particular reference to property taxation. We believe that, in order to make an equitable assessment, we should have: (a) Full-time, qualified local assesors; (b) a continuous method of assessing; (c) tax maps, sales data and other material that will assist the local assessor; and (d) adequate review and administration of the assessment.

In assessing farm property, several essential conditions must prevail to do a good job. The law describing the basis for assessing should serve both a theoretical and practical purpose. Our present "full cash value" clause does not adequately serve for the purpose of assessing farm property. Furthermore, assessing is a mathematical and economic process necessitating detailed examination of the property. This involves time, and lack of time and attention to details constitutes one of the basic reasons for unequal assessments.

There will undoubtedly be many proposals for the modification of the administrative organization concerned with tax laws. We are opposed to any plan that would take from local governments all responsibility and voice in the administration of taxes, and the assessment of property for tax purposes. We also believe that taxpayers living in the more remote parts of the State should have access to local review or appeal bodies.

We recognize that certain constitutional officers are empowered to perform certain functions in relation to administering and collecting taxes. Other State bodies have been given such power by legislation. We believe that the assessing (or/and administration pertaining thereto) collecting and auditing agencies of the government should be separate

bodies, each responsible to and reporting to the General Assembly and the Governor. Centralized authority within each of these functions may be proper and advisable, but no opportunity for collusion should be possible.

This Committee offers the following plan of organization for administering, assessing, and collecting taxes, for study and consideration on the part of members of the Grange and Farm Bureau and other interested parties:

1. That the State be divided into 6 or 7 supervisor of assessment districts with a supervisor of assessments for each such district. That the supervisor of assessments be appointed by the State Tax Commission from the State Civil Service list of residents of the respective districts (excepting such supervisors of assessments now employed as the State Tax Commission sees fit to appoint). Such supervisors to devote full time to their duties, and be paid by the State.

2. That a local assessor or local assessors in each county be appointed by the County Commissioners from a Civil Service list of local residents if such are available; if not available, from the respective list, to be taken from the list in the supervisor of assessment districts mentioned herein. That at least one assessor appointed in each county must have received better than a passing grade on a Civil Service examination especially designed to determine the applicant's knowledge of taxation and assessing as it applies to agriculture; such local assessors to be full-time employees, to be paid by the counties, and to carry out a continuous method of assessment.

3. That a Board of Review for each county be composed of the District Supervisor, one member of the Board of County Commissioners and one person to be acceptable to and appointed by the State Tax Commission, from a list of persons recommended by the County Commissioners.

4. That the State Tax Commission be composed of three members or commissioners, who shall be full-time employees, and who shall meet certain specified qualifications necessary to the performance of their special duties. Each member of the Commission to be named as commissioner of a certain group of taxes and be directly responsible for the administration of such taxes, to the Governor and the General Assembly; the State Tax Commission to be appointed by the Governor for terms and compensation, and according to geographic and political representation, now existing.

5. That a State Tax Board of Appeals be composed of three members, two as part-time members, to be appointed by the Governor, and one as the member of the State Tax Commission concerned in the appeal cases.

6. That the Comptroller be the collection officer for all State revenues, excepting possibly some revenue incident to regulation and other non-

fiscal activities, unless it is determined that the constitutional powers granted the Comptroller are more inclusive.

7. That the tax law be so amended as to provide additional guides, aids and criteria, other than "full cash value," for assessing property.

Public Schools

The county levy required for participation in the State Equalization Fund was increased from 47 cents to 51 cents in the fiscal year 1939-40. This was necessary to provide for the new minimum salary schedules for teachers established by the General Assembly of 1939. In addition, several counties have increased the salaries of colored teachers, partly because of recent court decisions favorable to equal salaries for equally trained and experienced teachers regardless of color.

Nineteen counties participated in and received money from the Equalization Fund in 1939-40. The county school tax rate for current expenses in these counties ranged from 51 cents to 74 cents; and for all school purposes, including debt service and capital outlay, the tax rates varied from 54 to 99 cents.

Baltimore, Cecil, Harford, and Montgomery counties did not share in the Equalization Fund. The school tax rate for current expenses ranged from 44 to 74 cents for 1939-40 in these counties; the total school tax rate varying from 50 to 92 cents.

We believe that, for the next biennium, the 51 cent tax rate requirement for sharing in the Equalization Fund should not be changed. If any factors of current school cost appear which would tend to increase this 51 cent levy we recommend that proper adjustments in State finances be made to prevent any increase in the county 51 cent levy.

County Roads

The present law governing the use of State funds for county road purposes may be summarized as follows:

1. Approximately one-half of the allocation to the counties from the one and one-half cent gasoline tax is to be spent for county road maintenance, payment to incorporated towns for street maintenance, and payment on account of county road debts.

2. The other half of such allocation to the counties must be spent for the improvement and construction of county roads, according to specifications for State roads, to be taken into the State system, and for debts incurred by counties for improving roads taken into the State system.

There are several objections to the present program as it pertains to county roads. The method of allocation does not provide maintenance funds according to the needs for such. Payments to incorporated towns and payments for county road debt out of the maintenance fund deplete such fund. Inexpensive or low type county road improvement, costing as little as from $3,000 to $10,000 per mile, is impossible, because State

specifications make necessary a greater expenditure. Therefore, under the present county road improvement program a relatively small mileage can be improved each year, and the State is forced to take into its system such roads improved from the allocations whether or not these roads have a proper economic position in the State system.

Data obtained concerning the cost of improving county roads under the present program indicate that, with a few exceptions, such costs will be about $8,000 to $12,000 per mile for low type State roads and from $15,000 to $30,000 per mile for the macadam or asphalt types with a probable average of nearly $20,000 per mile. The amount available for construction in 1939-40 totaled about $1,450,000 or sufficient for about 70 miles of roads.

By the end of the 1941 fiscal year, most of the counties, with the exception of Baltimore and Montgomery counties, will have paid off most of their existing road debt obligations, so that the maintenance fund need not be depleted in the future because of debt.

The county road maintenance program should assure proper maintenance and preservation of existing investment. There is definite need for a county road improvement program not involving such an outlay per mile as is required when such roads are taken into the State system. Table 2 shows that a large per cent of farm units are yet on unsurfaced roads, indicating the need for low type road improvements for several years to come. It also indicates that considerable variation exists among the counties and election districts as to needs for county road improvements.

Table 2. *Variation Among Election Districts in Per Cent of Farm Units*[1] *on Surfaced Roads, for Certain Counties in Maryland, 1939.*

County	Per Cent of Farm Units on Surfaced Roads	
	Lowest Percentage Among Districts	Highest Percentage Among Districts
Baltimore	27	92
Caroline	21	42
Carroll	15	59
Dorchester	33	100
Frederick	11	86
Garrett	26	62
Harford	41	86
Howard	42	95
Kent	48	92
Montgomery	43	98
Queen Anne's	57	82
Wicomico	15	72
Worcester	13	40

[1]Prior to the 1939-40 road program.

This committee recommends, for the next biennium, the following modification of the present county road program as it relates to the one and one-half cent gasoline tax:

A. Maintenance Fund:

1. That a certain amount per mile of the two or three major types or classes of county roads be allocated to each county based on the mileage in the county system only; this sum not to total more than $1,500,000 for all counties.
2. That payments to incorporated towns out of the county road maintenance fund be stopped.
3. That payments for county road debt out of the maintenance fund be prohibited, unless the county levies an equal amount of property taxes for county maintenance.
4. That the unexpended balance from the county maintenance fund at the end of the biennium be used for low-type county road (and bridge) improvement and construction, provided the county levies a property tax of an equal amount; the State Roads Commission to approve such construction projects recommended by the County Commissioners.
5. That allocations be made to Baltimore City and other incorporated cities and towns from the 30 per cent of the one and one-half cent gasoline tax, based on some equitable criteria.

B. Improvement and Construction Fund:

1. That the remaining sum of the 70 per cent of the one and one-half cent gasoline tax be allocated to the counties on the basis of mileage of unsurfaced county roads to be used under the following conditions:
   a. That not more than one-third of such allocation may be used by the State Roads Commission for the construction and improvement of county roads to be taken into the State system; such roads to be selected by the State Roads Commission from a list recommended by the County Commissioners.
   b. That the balance of such fund be used for low-type improvement and construction of county roads, costing within a range of about $3,000 to $10,000; such improvement and construction to be recommended by the County Commissioners (or County Road Board) and approved by the State Roads Commission.
   c. That those counties who wish to use their construction fund for road debt incurred by the county may elect to do so.

Exact equality or justice cannot be obtained by any method of allocation. We believe that the above described method will be reasonably fair and equitable, and will better serve the total needs in respect to rural farm road facilities. Preliminary analysis shows that most (at least three-fourths) of the counties will share practically the same amount, or more, under the proposed plan as they will under the present plan, and have a much more balanced and flexible road financing program.

Right of Way Condemnation Law

We realize that our law of condemnation for right of way in road construction and improvement is obsolete and unnecessarily delays road work, resulting in greater expense and much dissatisfaction. It is our belief that the State Roads Commission should be given the authority to proceed with construction, where settlement cannot be agreed upon, by giving bond, thus permitting claim settlements to be determined and made at later dates through the usual court procedure.

Inspection of Motor Vehicles and Re-examination of Operators

This committee is in sympathy with the efforts and activities of groups interested in decreasing motor vehicle accidents. The number of deaths and personal injuries, and the amount of property damage, resulting from such accidents should make any responsible person more careful on the highways. But the fact is that no great permanent progress or improvement has been made in correcting the faults or conditions responsible for such accidents.

In order to determine the remedies to be applied to prevent motor vehicle accidents, it is necessary to study the causes of such accidents. Tables 3 and 4 point out the condition of the operator, the motor vehicles and the pedestrian involved in fatal and non-fatal motor vehicle accidents in Maryland during 1938 and 1939. These data show, in brief, that physical defects of the operators are associated with less than three per cent of the accidents, whereas intoxication and/or drinking are associated with from 8 to 10 per cent of the accidents, and in about 85 to 90 per cent of the cases the operators seemed to be in normal condition.

From 90 to 97 per cent of the motor vehicles involved in accidents had no mechanical defects. Old age (those 65 and over) operators were involved in only two per cent of the accidents. Of the pedestrians concerned in the accidents, from 64 to 84 per cent were apparently normal, 12 to 16 per cent were intoxicated or had been drinking, and less than 5 per cent had physical defects.

Operating too fast was the reason for 48 per cent of the operators being involved in fatal accidents, and 14 per cent of the operators were negligent in various other ways.

Thus, it can be seen that a relatively small percentage of the accidents are associated with causes or conditions that may be almost eliminated by proposed semi-annual motor vehicle inspection and re-examination of

Table 3. *Analysis of Non-Fatal Personal Injury Motor Vehicle Accidents in Maryland, 1938 and 1939.*

Item	1938		1939	
	Number	Per Cent	Number	Per Cent
Total non-fatal accidents	1,403	100	1,004	100
Total persons injured	2,524	100	3,319	100
Condition of operator involved:				
Apparently normal	2,040	90	2,616	89
Intoxicated or drinking	182	8	282	10
Physical defects	38	2	40	1
	2,260	100	2,938	100
Age of the operator involved:				
65 and over	34	2	57	2
30 - 64	1,108	54	1,565	53
Under 30	921	44	1,316	45
	2,063	100	2,938	100
Condition of motor vehicle involved:				
No defects	2,185	97	2,863	97
Defects on vehicle	75	3	99	3
	2,260	100	2,963	100
Condition of pedestrian injured:				
Apparently normal	267	84	309	82
Intoxicated or drinking	38	12	58	16
Physical defects	12	4	8	2
	317	100	375	100

operators every third year. Such a program would cost the motor vehicle owners and operators of Maryland $650,000 annually. Many farmers, who have several operators in the family and several motor vehicles for various uses, would be burdened relatively by such a program. On the other hand, such a program would make many persons, who pay little other direct taxes, contribute to State revenue.

A program of control, costing $650,000 per year, which actually saves lives and prevents injury to persons and prevents property damage, has merits and should not be passed up lightly. However, this committee believes in placing the emphasis on eliminating those conditions or factors which are responsible for the major rather than, or in addition to, the minor portion of accidents. A program of broad attack to eliminate all causes responsible for motor vehicle accidents would meet with the whole-hearted approval of this Committee.

Table 4. *Analysis of Fatal Motor Vehicle Accidents in Maryland, 1938 and 1939.*

Item	1938		1939	
	Number	Per Cent	Number	Per Cent
Deaths caused by motor vehicle accidents	466	100	425	100
Number of pedestrians killed	243	100	217	100
Reasons for operator being involved in fatal accidents:				
Operating too fast	249	48	226	49
No improper driving	192	37	174	38
Other negligences	70	14	61	13
Not stated	3	1	1	1
	514	100	461	100
Condition of operator involved in fatal accidents:				
Normal	441	86	381	83
Had been drinking	44	9	47	10
Not stated	22	4	27	6
Physical defects	7	1	6	1
	514	100	461	100
Age of operator involved in fatal accidents:				
65 and over	8	2	6	1
40 - 64	115	22	94	20
20 - 30	312	61	290	63
Under 20	79	15	71	16
	514	100	461	100
Condition of motor vehicle involved in fatal accidents:				
No defects	462	90	413	90
Defects in vehicle	33	6	21	5
Not stated	20	4	27	5
	515	100	461	100
Reasons for pedestrians being killed:				
Apparently normal	188	64	176	70
Had been drinking	41	14	33	13
Other reasons	48	17	35	14
Had physical defects	14	5	8	3
	292	100	252	100

We recognize the difficulty encountered in getting proper inspection of motor vehicles under the present plan. This program may be improved in some manner so as to be effective in reducing the accidents caused by the conditions which inspection is supposed to eliminate. We also believe that persons involved in accidents, especially when license suspension or revoking follows, should be re-examined and tested for driving fitness.

Relief Program

We are advised that relief and public welfare costs are low in Maryland as compared with those costs in other states. Those in charge of this program are commended for their efforts and efficiency, and we ask their cooperation in continuing such a policy.

Respectfully submitted,

D. G. HARRY, *Chairman*
C. E. WISE, JR., *Secretary*
H. H. NUTTLE
P. C. TURNER
T. ROY BROOKES
T. B. SYMONS
A. G. ENSOR
HOMER REMSBERG
E. F. HOLTER
JOSEPH BLANDFORD
R. C. F. WEAGLY
A. M. ETZLER
CHARLES I. BOYLE
S. H. DEVAULT
W. P. WALKER

C. C. PHILLIPS: I would like to have that paragraph 3 on page 6 read, so that we may understand what we are voting for.

MR. WISE: I am suggesting that you go back to page 5 and read just before the numbered paragraphs started, and you will see that this is only a plan offered for study and consideration on the part of the members.

MR. TURNER: Would you make at this time a motion that we approve this whole tax report as it is presented?

Dr. Huck, of Baltimore County, moved the acceptance of the report as presented, W. T. Chaffey seconded the motion and it was carried.

MR. TURNER: When you wish to second any of the resolutions please rise and give your name. If you have any new resolutions to offer, please go up to the office and have three copies made in typing and do not present them in long hand. I will now call on C. C. Phillips, Chairman of the Resolutions Committee, for the report of that Committee.

Mr. Phillips then read each resolution by number and moved the adoption.

Mr. Turner called for a second and they were passed as follows:

Resolution No. 1 seconded by Mr. Blackburn, of Caroline County.
Resolution No. 2 seconded by Dr. Huck, of Baltimore County.
Resolution No. 3 seconded by Francis G. Shillinger, of Talbot County.
Resolution No. 4 seconded by H. H. Rieck, of Caroline County.
Resolution No. 5 seconded by Earl R. Keene, of Dorchester County.
Resolution No. 6 seconded by C. I. Boyle, of Queen Anne's County.
Resolution No. 7 seconded by A. Spies, of Talbot County.
Resolution No. 8 seconded by Dr. Huck, of Baltimore County.
Resolution No. 9 seconded by Dr. Huck, of Baltimore County.

MR. JOHNS: I would like to ask about the State rate of pay for those W. P. A. men. The farmer cannot always pay the same rate, if hours be considered. I wonder if some clause should be added there. I am not in a position to offer the exact wording, but it seems to me there should be something there.

MR. TURNER: We will ask Mr. Weagly to explain that.

MR. WEAGLY: I think the ruling is now that they must accept the legal rate for the work done on the farm. We had them picking beans by the 100 pounds, and they could make as much as $4.00 a day picking them at 75 cents per 100 pounds. Some of them refused because they thought they could not make as much as that. If they do not accept the employment offered them in Washington County, we may go to the Administrator and work out a plan, and we find that they have to accept the usual wage for work offered.

MR. EILER, of Frederick County: Lots of time you get them and try to work them, and they just kill time on you. What are you going to do about that?

DR. HUCK, of Baltimore County: I would like to make a suggestion that if the wage offered did not come up to the W. P. A., perhaps the difference between that and the amount of the W. P. A. could be paid by the W. P. A.

MR. TURNER: I understand from Mr. Weagly that they must accept the farm wage, even if it is lower than the W. P. A., and so there would be no difference. Is there any amendment to this resolution as offered?

MR. BOYLE: What does the W. P. A. pay?

MR. TURNER: They are supposed to pay the prevailing wage rate for the work they are doing. If there is no amendment, we will proceed with the report.

Resolution No. 10 seconded by Mr. Keene, of Dorchester County.
Resolution No. 11 seconded by Dr. Huck, of Baltimore County.
Resolution No. 12 seconded by Mr. Rinehart, of Carroll County.
Resolution No. 13 seconded by Frank Wimbrow, of Wicomico County.
Resolution No. 14 seconded by Dr. Huck, of Baltimore County.

Resolution No. 15 seconded by P. J. Walbert, of Queen Anne's County.

Resolution No. 16 seconded by G. L. Shawn, of Queen Anne's County, and H. H. Rieck, of Caroline County.

Resolution No. 17 seconded by Oscar F. Grimes, of Anne Arundel County.

Resolution No. 18 seconded by Dr. Huck, of Baltimore County, and Dr. Bell, of Baltimore County.

Resolution No. 19 seconded by A. H. Spies, of Talbot County.

Resolution No. 20 seconded by C. I. Boyle, of Queen Anne's County.

Resolution No. 21 seconded by Geo. B. Johns, of Carroll County.

Resolution No. 22 seconded by Harry Rieck, of Caroline County.

Resolution No. 23 seconded by Mrs. Harry Davis, of Frederick County.

Resolution No. 24 seconded by Frank Wimbrow, of Wicomico County, and Edwin Fry, of Montgomery County.

Resolution No. 26 seconded by Xavier Gardner, of Charles County.

Resolution No. 27 seconded by U. J. Eiler, of Frederick County.

Resolution No. 28 seconded by F. Harvey Bailey, of St. Mary's County.

Resolution No. 29 seconded by Harry Rieck, of Caroline County.

Resolution No. 30 seconded by Ridgeley Todd, of Baltimore County.

MR. CHAFFEY: Aren't there two resolutions on that?

MR. TURNER: I don't think so. I think there is a difference.

MR. CHAFFEY: That seems the same as No. 17.

MR TODD: That is an entirely different situation. No. 17 was about ten to 20 years ago.

MR. TURNER: Any appropriation made this time is not available until October.

No amendment offered.

Resolution No. 31 seconded by Mr. Johns, of Caroline County.

Resolution No. 32 seconded by W. M. Pitzer, of Frederick County.

G. A. MANN: I would like an explanation of that.

MR. WISE: It simply means asking that two acres per horse or mule be added to the farmer's allotment, so as not to permit the farmers using tractors to have any advantage over the farmers working horses or mules. We think it very fair.

MR. TURNER: Mr. White has presented this resolution all over the United States.

No amendment.

Resolution No. 33 was seconded by Dr. Huck, of Baltimore County.

Resolution No. 34 was seconded by Mrs. Henry Watson, of Kent County, and Mrs. Edwin D. Fry, of Montgomery County.

Mrs. Fry asked for a rising vote of thanks.

Resolution No. 34 was amended by striking out the name of the Governor after some discussion, Mr. Wise explaining that in striking that name out no discrimination against the Governor was intended, but

inasmuch as he was not present, the amendment was called for to keep the records correct.

Mr. Nuttle requested that Henry Shoemaker's name be added, and several members seconded the request and the name was added.

N. B.: After the reading of the resolutions as presented by the Committee several resolutions were offered, which will be given later, and the number of No. 34 was changed to No. 40, and it finally read as follows:

Appreciation

RESOLUTION No. 40. We, the Maryland Farm Bureau, Incorporated, in Convention assembled, desire to recognize with gratitude the contribution made to our program by Dr. Roger Corbett, Director of Experiment Station, University of Maryland, College Park; Dr. Maurice C. Pincoffs, Chairman of Committee on Medical Care; Reverend C. S. Hubbard, Pastor of First Methodist Church, Asbury Park, N. J.; Dr. T. B. Symons, Dean and Director, College of Agriculture, University of Maryland; Dr. H. C. Byrd, William Dern, and H. R. Shoemaker. We are grateful to the management and staff of the Lord Baltimore Hotel for the fine cooperation we received from them; we extend our thanks to all those who as speakers, members and workers helped to make this Twenty-fifth Annual Meeting of the Maryland Farm Bureau such an outstanding success; and especially do we recognize the extra hours put in by President Turner, Secretary Wise, and others of the staff of our State organization.

The resolutions presented by the Associated Women were passed as a single group—Mr. Linton seconding the motion.

Mr. Shillinger presented the following resolution, No. 34:

We believe that additional efforts are necessary for Horticulture, and endorse the report of the Horticulture Council. We instruct our officers and directors to consider these requests when other appropriations are asked for in the Supplemental Budget.

Mr. Linton seconded the motion to pass the resolution.

MR. MANN: That is not very clear. We would like to hear more about the report.

MR. TURNER: We could have it read here. It is a long statement. It was considered best to keep the Farm Credit Administration as a separate body, an independent agency. Would you like to have the whole report read?

Mr. Wise read part of the report.

MR. TURNER: We want to keep politics out of it. Does that answer your question?

MR. MANN: I wanted it brought out definitely so that we will know about it. I think it is vital.

Resolution passed.

RIDGELY TODD: I have some resolutions handed me, as they were prepared too late to go to the Resolutions Committee. They are resolutions

brought up by the Horticulture Council, which represents the food industry, the vegetable growers, and the nursery industry of the State. There is quite a lot of it, which I will read.

(Reading resolution.)

MR. TURNER: Will some one move the adoption of that so we may have the discussion started?

MR. TODD: I will move the adoption.

MR. CANBY: I would like to second the adoption.

MR. TURNER: Next in order is the discussion.

MR. CANBY: To make that clear, I might say that in case of request for cold storage facilities we have the building for cold storage room without machinery. In the last few years there has developed in Western Maryland a new disease which threatens the industry, and we simply ask for a study of the disease, and how to curtail it.

MR. TURNER: You are now talking about the first part of this resolution?

MR. CANBY: We want to install the cold storage equipment in No. 1, and are asking for cold storage equipment there. The reason is that we have the room, but we have not the machinery.

MR. TURNER: That covers the turkeys while in cold storage.

MR. CANBY: We could change it to cover the whole list.

MR. TURNER: Suppose we take it in order.

MR. CANBY: We want funds to install adequate equipment for by-products. The industry is in a pretty critical condition. The foreign trade is eliminated due to the present war conditions. This is an effort to develop a by-product in the form of juices—the vegetable growers want the same thing with tomato juice. We want a fund to make a study pertaining to this industry. That is self-explanatory. That is a condition that is very alarming, particularly in Western Maryland, and it certainly needs attention, and so far there has been no provision for it, as I understand. We want equipment for our cold storage plant, and we want funds available for this service in Western Maryland. When a car of apples is picked and packed, they have to be disposed of promptly.

MR. TURNER: Is that for inspection?

MR. CANBY: Yes.

MR. TURNER: You have some inspection now, and you have to pay for that.

MR. CANBY: Yes.

MR. TURNER: Would that inspection relieve the duties of the present inspection?

MR. CANBY: No, this inspection would make it more readily available in the remote part of the State.

MR. TURNER: Is Mr. Shaw present? Mr. Shaw, what is the present

charge? What does it cost the grower for the inspection per carload, say in Western Maryland?

MR. SHAW: Four dollars per car in some sections of the State, particularly those sections now selling apples that are more or less scattered. The expense exceeds $5.00 a car, sometimes. This work is carried on in cooperative agreements with the U. S. Department of Agriculture. It is required that all cars be inspected by that service, the cost being paid by the producers.

MR. TURNER: Mr. Wise has suggested something. I am sure the details of all this can be worked out. See whether this will meet your approval.

MR. WISE: There is too much detail in this resolution for this large body to consider at this time. It should have been considered by the Resolutions Committee. I suggest this—that this matter be presented to the officers and directors and have them work out a plan.

MR. TODD: Then to facilitate that, I will withdraw my motion.

MR. RIECK: Will that include the inspection of eggs and poultry?

MR. TURNER: Suppose you have a recommendation that that matter be left to our officers and directors, and then we report that to the Governor to go into the supplemental budget instead of us talking about all the details now. I believe in another year we are going to have a deadline before the Convention and requests from all groups must come in before if they expect to have them adopted here.

MR. RIECK: Yesterday we heard a whole lot of speeches, especially about the cooperative markets. That is something we have fallen down on. We should try to help to put this over in a big way. We do not have sufficient service, the organization is too small. It should perhaps be included in the general resolutions. Article 18 of the general resolutions is perfectly all right with me if it goes far enough.

Mr. Johns suggested a supplemental resolution to No. 19, and Mr. Young seconded.

MR. TURNER: If we go down before the Governor with all these items, we are going to insist that somebody from each section interested goes along with us. Some one from each of those groups must go to explain what they want, and what it is for.

DR. SYMONS: This is the response of the farmers in these districts representing nearly two million acres of land in the State, and I want the group to know that it emanated from the farmers themselves in the respective districts. They need every year over $100,000 of equipment in the service, and they need the further cooperation of the farmers, who are really paying for the service. That is the request of the farmers for our service.

(In the midst of all this discussion Resolutions Numbered 35, 36 and 37 were passed.)

MR. WINTERBERG: I want to say something about the vocational

teachers. Under the present salaries that they are getting, through a ruling of the State Board of Education as I understand it, they have to sign up for class nights—I know our man in Grantsville had to work sixty nights in order to get his salary, and I would like to have a resolution about that. I would like to see these agriculture teachers all get what is really coming to them. They have to work nights and work extra time, have to go to the State Fair, and they do not get anything out of that. They have to do quite a lot of traveling around. I think something ought to be done about that.

MR. TURNER: Several resolutions came before the Resolutions Committee on that, but they did not feel they could do anything about it. That has to come from the County Commissioners in charge of the Counties concerned. We referred them to the Board of Directors of their County Farm Bureau to call on the County Commissioners and get them to take it up.

MR. WINTERBERG: We went to our County Commissioners to get an appropriation, but they are not going along with the Federal appropriation.

MR. TURNER: There is $117,000 appropriated to Maryland for vocational schools to teach boys. That money is available—$117,000—and should be apportioned to the different sections. Your vocational school should get a part. We have never gone into an individual County as a State organization. Every County Bureau should take it up with their County Commissioners. That is what we said.

MR. WINTERBERG: Take our County. It is not a large County. The vocational teacher is not satisfied. He has to work too hard for his salary.

MR. TURNER: Does the agriculture teacher get more than the others?

MR. WINTERBERG: They have to teach nights in order to get their salaries.

DR. SYMONS: I have a resolution that perhaps will help Mr. Winterberg take back something to his people. I will read it.

(Reading Resolution No. 38.)

MR. WINTERBERG: That is all right. I move the adoption of that resolution. Mr. Rieck seconded the motion and it was carried.

MR. TURNER: Now, is there a motion to adopt the resolutions as a whole? Mr. Phillips moved they be adopted as a whole, and Mr. Linton seconded the motion and it was carried.

MR. WISE: I have a resolution that will bear upon the activities at the Legislature. (Reading No. 39.) We hereby instruct our officers and directors to develop a program of legislation to obtain the activities of the 1941 delegates and to secure the portion of the additional appropriations requested that in their judgment is essential and feasible.

Seconded by Mr. Chaffey and Mr. Funk, and carried.

MR. TURNER: Now, we will have W. L. Smith, Chairman of the Program Committee, make his report.

REPORT OF STATE PROGRAM AND MEMBERSHIP COMMITTEE

W. L. SMITH, Chairman

The report of the Program and Membership Committee to the convention in January, 1940, having been accepted by the voting delegates, the officers and fieldmen of the organization proceeded to carry out the program. Organization meetings of leaders were held in the majority of the counties of Maryland with an average attendance of 22. County quotas for membership were accepted and county programs planned.

The result has been most gratifying. Three mass membership campaigns were conducted; one on the Eastern Shore and two on the Western Shore. The total members signed in these three campaigns were 2,079. Total membership secured in 1940 was 5,107 members, of which 132 were signed by the women.

Activities recommended to the counties by the State Program and Membership Committee were well received and various services were expanded as well as new projects undertaken such as Group Hospitalization, organization of cooperatives, refrigerator lockers, cooperative buying of supplies, purchase of baby chicks, seed cleaning and treating service for farmers, support of the Wool Pool, etc.

The Associated Women very ably assisted in some of these programs. The effort of the counties to cooperate with the State Farm Bureau program was largely responsible for 20 of the 23 counties qualifying for a certificate as a standard county Farm Bureau in 1940. Your committee met Wednesday night with 10 members present. Richard Blackburn presided in the absence of the chairman, W. R. C. Connick.

The committee makes the following recommendations for your consideration:

A minimum score of 80 points to qualify as a standard county Farm Bureau.

A revision of the score sheet to give additional credit for the continuation and formation of Planning Groups.

A goal of 150 Planning Groups in Maryland by January 1, 1942.

Acceptance of national quota of 5,250 members.

Acceptance of state quota of 5,500 members.

A committee composed of C. E. Wise, Jr., M. L. Sutton and W. L. Smith to revise the general program material, basis of qualifications, and score sheet before this material is mimeographed for county use.

Mr. Blackburn moved the report be accepted as read and Mr. Griffith, of Montgomery County, seconded the motion and it was carried.

MR. TURNER: I will now call for a reading of the credentials committee. Report presented as follows:

The following have been nominated by the county and affiliate members to be directors of the Maryland Farm Bureau, Inc.:

Allegany County—R. C. Wilson
Anne Arundel County—Oscar F. Grimes
Baltimore County—F. Ridgely Todd
Calvert County—J. Ellis Bowen
Caroline County—Richard Blackburn
Carroll County—John D. Young
Cecil County—D. B. McDowell
Charles County—S. C. Linton
Dorchester County—Earle R. Keene
Frederick County—A. M. Etzler
Garrett County—William Winterberg
Harford County—Fred C. Jones
Howard County—Roby H. Mullinix
Kent County—H. S. Leaverton
Montgomery County—James D. King
Prince George's County—W. R. C. Connick
Queen Anne's County—Merton R. Shawn
St. Mary's County—F. Harvey Bailey
Somerset County—William T. Chaffey
Talbot County—Francis G. Shillinger
Washington County—Roy C. F. Weagly
Wicomico County—Claude C. Phillips
Worcester County—Willard P. Evans
Associated Women—Mrs. Edwin Fry
Mrs. H. L. Lewis

Honorary Directors:

Associated Women—Mrs. P. D. Brown
Mrs. C. J. Kern
Mrs. Dennis Reed
Mrs. Joseph Parker
Mrs. Minier Hostetler

Maryland Ayrshire Breeders Association—A. I. Bell
Maryland Beekeepers Association—E. N. Cory
Maryland Crop Improvement Association—Lawrence E. Ensor
Maryland Horticultural Society—G. Rust Canby
Maryland Holstein-Fresian Association—H. O. Norris
Maryland Horsebreeders Association—Janon Fisher, Jr.
Maryland Cooperative Milk Producers, Inc.—R. W. Shermantine
Maryland State Poultry Council—Harry H. Rieck
Maryland Stockmen's Association—J. Herbert Snyder
Maryland Tobacco Growers Association—Oden Sansbury
Maryland Vegetable Growers Association—F. Ridgely Todd
Hillsboro-Queen Anne Cooperative Corporation—Henry Whiteford

Moved, seconded and carried that the directors certified by the Credentials Committee be confirmed

Moved by J. W. Jones, seconded and carried that the actions of the directors as contained in the minutes of the Board meetings are hereby approved and ratified.

MR. NUTTLE: Mr. Turner has asked me to preside. I will be glad to have a report of the director's meeting.

SECRETARY WISE: Your directors met yesterday noon as prescribed by the by-laws, meeting as a nominating committee and nominated P. C. Turner for president and R. C. F. Weagly as vice-president for the coming year.

MR. NUTTLE: I will now call for nominations from the floor for president.

Duly moved, seconded and carried that the election of officers be by verbal vote instead of written ballot.

Mr. Mann moved the nominations be closed and that the secretary cast a ballot for P. C. Turner for president for 1941, and until his successor be elected.

Secretary Wise cast the ballot as directed.

MR. TURNER: Gentlemen, I appreciate that. I realize the responsibilities of the position, and its activities. I have tried to do my best this past year, and I take it that you have approved of what I have done. In the future you can count on me to do everything I can to promote agriculture in the state of Maryland.

Mr. Turner resumed the chair, and called for nominations from the floor for vice-president.

MR. PHILLIPS: I am glad to sponsor the nomination of my good friend for vice-president and move that the nominations be closed and that the secretary cast the ballot for Mr. Weagly for vice-president.

Motion seconded and carried.

Secretary Wise cast the ballot as directed.

MR. WEAGLY: Thank you, gentlemen, I am just the spare tire of the Maryland Farm Bureau. I will be inflated only when the president has a flat tire.

MR. KEENE: I would like to move that we give Mr. C. C. Phillips, our retiring vice-president, a standing vote of thanks, for the work he has done during the years he has been in office.

Standing vote taken.

MR. TURNER: I will now call for a motion to adjourn this Convention.

Mrs. Edwin D. Fry moved for adjournment, Mr. Phillips seconded the motion and it was carried 12.30 P. M.

RESOLUTIONS 1941
MARYLAND FARM BUREAU, INC.

Foreword

The Maryland Farm Bureau, Inc., faces the future with courage and determination. For a second time we meet in the shadow of war and everyone now recognizes the depth of the menace to democracy and to civilization itself. Great problems and grave responsibilities face the United States in the months ahead.

We pledge our confidence in President O'Neal and the other officers and directors of the American Farm Bureau Federation and commend their efforts to correlate all organized farmers into a National program for agriculture. We endorse the resolutions adopted at the 22nd Annual Meeting of the American Farm Bureau Federation in so far as they are applicable to our State.

Farm Credit

1. The farm credit system built up through a quarter century of effort of farm leaders belongs to agriculture and its farmer borrowers.

We endorse the resolution on farm credit adopted by the 22nd Annual Convention of the American Farm Bureau Federation.

Monetary Policy

2. We urge the early completion of the study of monetary and credit policy now under way by the Banking and Currency Committee of the United States Senate. This is necessary to the end that monetary and credit policy may be made to serve to the fullest degree possible, the objective of stable commodity prices, with a dollar of constant purchasing and debt-paying power.

Coordination of Farm Programs

3. In the interest of efficiency and economy in carrying out the new programs which have been provided in agricultural legislation during recent years, we endorse the position taken by the American Farm Bureau Federation in urging greater coordination in both the U. S. Department of Agriculture and in the State.

Marketing Agreements

4. We urge the enactment by Congress of pending legislation to extend the order provisions of the Agricultural Marketing Agreements Act of 1937 to all agricultural commodities.

Roads

5. We express our appreciation to the Governor and the Maryland legislature in stopping the diversion of road funds and urge the continuance of this policy.

We commend the Chairman of the State Roads Commission in his desire to build cheaper but more miles of Farm-to-Market roads and urge the Counties to make a study of the available data to guide them in their improvement program and that the county commissioners determine where the roads shall be improved, using the amount of travel over the road as an important factor in determining the location.

We recommend the following:

1. That the present law be amended to allow the construction of cheaper but more miles of Farm-to-Market roads.
2. Expand the use of convict labor on roads; amend the law to give the Counties the privilege of using convict labor to build, grade or prepare material to maintain hard surface or gravel Farm-to-Market roads.

Taxation

6. We have pioneered in advocating the principle of a state income tax as a basic form of state revenue. We are gratified that the 1939 session of the general assembly adopted this plan.

We advocate amendments that will more adequately place the burden of taxation on ability to pay. We congratulate the present state administration on the healthy condition of the state finances. We applaud Governor Herbert O'Conor on his pointing the way to liquidate the state bonded debt and the state real estate levy within the next decade, a long cherished desire of our organization.

We endorse the report of the joint tax committee of the Farm Bureau and the State Grange and direct our officers to work for the adoption of its recommendations on the State road program, the income tax and the reduction of the State real-estate levy. Our county units are urged to study the proposals relative to the improvements in the methods of real estate assessment.

Public Safety

7. We urge that all agencies continue working toward the prevention of automobile accidents and the elimination of road hazards.

Farm Labor

8. We recognize the tremendous shortage of farm labor due to those previously employed on the farm being used in defense industries and the draft. We realize the importance of defense industries, but call to attention of the proper authorities that "agriculture is vital to total defense."

We recommend that the relief authorities furnish employment agencies a list of those who are receiving relief, yet able to work, with the understanding that if they are offered work on the farm it will be mandatory that they accept or be stricken from the relief roll.

We urge greater coordination between the public welfare agencies, W. P. A. and the U. S. Employment Service.

W. P. A. Labor

9. Recognizing the increasing scarcity of farm labor which intensifies the numerous and complex problems of agriculture, we recommend:

(a) That the privilege of drawing labor from any W. P. A. project be continued;

(b) That a more complete understanding of the procedure of drawing and re-instating a W. P. A. worker be developed among the W. P. A. administrator, the W. P. A. laborer, and the farmer;

(c) That the W. P. A. projects, using men available for seasonable labor on the farm, be closed according to the local need during the peak seasons of harvesting grains, fruits, and vegetables.

Wage and Hour Act

10. We protest anew the interpretation by the Administrator of the Wage and Hour Act of the terms "Area of Production." The inclusion within the Act of seasonal labor engaged in the handling, packing or canning of agricultural or horticultural commodities for market will, we believe, mean lower prices to farmers, and also take more labor away from the farm at this critical time when defense industries have already absorbed much of our farm labor.

If this ruling as to the "Area of Production" cannot be modified in any other way, we favor action by Congress to exempt such seasonal labor from the provisions of this act.

Cooperative Development

11. We believe in the principles of business cooperation among farmers in all fields and renew our desire, as a Farm Bureau Organization, of using all efforts to develop this program.

Cooperatives operate in all parts of our state and farmers can purchase practically all of their supplies cooperatively. We urge greater farmer support of this self-help program in 1941.

The continuance of a two or three day Cooperative Institute for leaders and employees by the Extension Service and Cooperatives is important to the educational development in this field.

A Management and Auditing Service has been set up and is operating for several Farm Bureau cooperatives. We urge the expansion of this program to include all Farm Bureau Cooperatives, when deemed advisable by the Board of Directors.

We urge the use of Insurance services of the Farm Bureau as a valuable part of our cooperative program.

Consumer Cooperatives

12. Inasmuch as Consumer Cooperatives are rapidly developing in the East, we recommend the continuation of the State Consumer Cooper-

ative Committee. We urge further study of this service and assistance in the formation of buying clubs or Consumer Cooperatives where practical.

Farm Bureau Planning Groups

13. We are convinced that Planning Groups are a vital part of the Farm Bureau Program from the standpoint of education, membership acquisition and the establishment of needed services for our rural people.

We recommend the expansion of this part of our program.

Hospitalization

14. Group hospitalization has proved very beneficial to our members in the counties which have taken advantage of the Associated Hospital plan.

We recommend the expansion of this service in the counties from the standpoint of securing more members in counties which have the service and the formation of groups in counties that do not have group hospitalization.

Rural Electrification

15. We express our gratification for the splendid progress that has been made in extending the availability of electric service to Maryland farms. Through cooperative action $1,730,000 has been made available to date by the Rural Electrification Administration on a self-liquidating basis for building 1,567 miles of line to serve 4,382 members. Of this, 629 miles have been built, leaving 938 to be completed.

We appreciate the fine cooperation given by private companies in building each year hundreds of miles of rural lines to serve thousands of farm families and in making available wholesale power to the cooperatives.

It is our hope and desire that the National defense program will not interfere with the continued extension of these lines into the yet unserved areas of the State.

Rural Housing

16. There exists a great need throughout the State for assistance to rural people in improving their homes and other farm buildings. Surveys have shown that 50 percent of our farm homes need major improvements. There is also great need for repair and addition to farm buildings. The Federal Government has provided means for aiding and promoting urban housing. We endorse the effort being made to obtain Federal support for a program of education and assistance in rural housing primarily upon a self-help basis.

Baltimore Market Facilities

17. The facilities for marketing fruit and vegetables in Baltimore are distressingly inadequate for the efficient marketing of these products. This situation must be corrected to prevent the confusion and loss of time and money in truck marketing.

The Maryland Farm Bureau pledges its full support to secure the appropriation and legislation including the Marketing Authority Act, needed to improve facilities in the Baltimore wholesale fresh fruit, vegetable and poultry markets.

University of Maryland

18. We observe with disappointment the allowance made in the Governor's budget for the University of Maryland, the State Board of Agriculture and for special purposes requested by our organization.

We urge our officers to confer with the Governor and legislature with a view of more adequately taking care of the urgent needs of the University, especially in the maintenance of our agricultural facilities and services.

Soil Erosion Control Program

19. We hereby endorse the splendid work accomplished by the five soil conservation districts in Maryland during the past year. This work has been carried on under the guidance and direction of the State Soil Conservation Committee through the State Board of Agriculture. Recognizing that saving the soil, increasing farm yields, preserving woodlands and wildlife, and diminishing floods are most worthy objectives, the Maryland Farm Bureau is happy to support this program in the future as it has in the past, and particularly pleased to note the fine progress made by the districts towards these objectives.

Drainage

20. We heartily endorse the expanding program of state drainage in cooperation with the U. S. Soil Conservation Service.

Conservation of Soils and Forests

21. No group is more directly and seriously concerned than the farmers in the conservation of natural resources. Two of the greatest natural resources, the soils and the forests, are integral parts of their farms and cannot be separated from the other parts in farm management and operation. We favor a program which will most effectively conserve the great natural resources of Maryland, but are opposed to a set-up which attempts to take soil and forestry conservation away from the subjects with which they are naturally associated and place them with unrelated subjects. We repeat our policy expressed in former years that forestry should continue under the State Department of Agriculture and should not be set up as an independent agency.

Conservation of Fish, Game and Wild Life

22. We heartily approve of the constructive program and commend the work of the Chesapeake Bay Commission and the Upland Game Commission. We believe that these related phases of conservation can best be handled by specific agencies working in cooperation with each other in the broad program of conservation.

Board of Agriculture

23. Since the Board of Regents of the University of Maryland is by law the State Board of Agriculture, we feel that agriculture should be more adequately represented. We instruct our officers to confer with the proper state officials looking toward increasing the membership of this body by legislation so that agriculture will have proper representation.

Dog Laws

24. We recommend that the counties study the existing dog laws and insist on strict enforcement to aid our poultry and livestock producers.

Seed Law

25. We favor legislation to bring our State seed law into general conformity with recent Federal seed enactments and to include vegetable seeds, and recommend that additional facilities and support be provided for the effective and efficient enforcement of such broadened seed legislation.

Tobacco Marketing

26. We express our appreciation to Governor O'Conor for the appointment of a Committee to study the problems of tobacco marketing in the state. The Farm Bureau will glady support any efforts to protect the producers and to aid them in overcoming their problems of marketing this important crop.

Market Reporting

27. We recommend that the State law now in effect requiring tobacco sellers on the Baltimore Tobacco Market to report pounds sold and prices received, be amended to require the same type of reports from Auction Sales floor operators and speculators buying on auction markets.

Tobacco Curing

28. In view of the tremendous loss sustained by tobacco growers because of house burn or pole sweat, which frequently amounts to more than a million dollars, and in view of the fact that no work has been done on tobacco curing and no funds appropriated by the Legislature for such work, we endorse the request of the Maryland Tobacco Growers' Association for an appropriation of $15,000.00 for this purpose; $10,000.00 to be used the first year and $5,000.00 the second year to conduct tobacco curing investigations by the University of Maryland Experiment Station.

Direct Surplus Purchases

29. Baltimore markets having not materially benefited from the Direct Purchase Program to date and particularly during the peak sea-

sons of local fresh fruits and vegetables, our market often becomes unnecessarily depressed by minor surpluses and direct purchases at the proper time would have a tremendous stabilizing effect. Therefore, we urge that immediate steps be taken by the proper officials to designate the Baltimore market as a purchase point for perishable products in distress.

Baltimore Market

30. In view of the chaotic condition of the vegetable industry and diminishing returns to growers; and due to the high pressure merchandising program of certain distribution agencies handling fruits and vegetables, it becomes necessary that steps be taken to bring about organization and coordination of effort among Maryland producers. It has become further necessary that there be better cooperation and coordination of effort on the part of Maryland producers with producers in other states. Therefore, it is urged that the State of Maryland include an appropriation of $7,500.00 in the supplemental budget, specifically designated for the promotion and development of the Maryland fruit and vegetable industry.

We urgently request that the Maryland Farm Bureau appoint a special committee to confer with the Governor on this particular appropriation and some means be worked out whereby funds are available to start work not later than May 1st, 1941.

Food Stamp Plan

31. We endorse the broad, humanitarian objectives of the Stamp Plan for disposing of agricultural surpluses and its continuation and extension of this program to include unserved towns and cities in Maryland.

Allotments Credit for Work Stock

32. We endorse the move to give credit in the soil-depleting allotments for farmers who use horses and mules in the operation of their farms. We refer the data and a suggested plan to the State Agricultural Adjustment Committee.

Rural Health

33. We recognize the need for more adequate medical care, better laboratory facilities and increased hospital space in rural Maryland. It is gratifying to know that a thorough study of this situation is being conducted by a committee of the State Planning Commission working with the city and state health departments, county health officers, the state Welfare Board, and all similar agencies. We urge our state officers and county units to cooperate with this Committee in its survey and to assist it in securing the necessary appropriations.

Horticultural Council

34. We believe that additional funds are necessary for horticulture and endorse the report of the *Horticultural Council.* We instruct our officers and directors to consider these requests when other appropriations are asked for in the supplemental budget.

Turkey and Egg Marketing

35. Inasmuch as there are no funds allowed in the new State budget for marketing of dressed turkeys and eggs on the basis of Federal-State grades, we recommend the allotment of $3,700 for this work in the supplementary budget.

Convict Labor Appropriation

36. In the interest of defense and the present anticipated serious shortage of farm labor, we urge a State appropriation of sufficient size to cover expenses of convict labor on all road work and other public projects, where practicable.

Soil Erosion

37. Inasmuch as soil erosion control districts are making great progress and as the Federal Government is loaning machinery for operation, we recommend an appropriation of $20,000.00 to cooperate with the Federal Government, the counties and the farmers in developing this important work in the state.

Teachers of Vocational Agriculture in Maryland

38. Vocational agriculture has played an important part in the education, guidance and placement of farm boys in Maryland.

It is recommended that the vocational teachers be paid on a 10 month basis as academic teachers, plus 20 per cent for the two summer months. It is also recommended that travel allowance be made for necessary outside travel, as well as within the school area.

It is suggested that this resolution be brought to the attention of the County Superintendents of Schools.

Legislative Action

39. We hereby instruct our officers and directors to develop a program of legislation to obtain the objectives of the 1941 resolutions and to secure the portion of the additional appropriations requested that in their judgment is essential and feasible.

Appreciation

40. We, the Maryland Farm Bureau, Inc., in Convention assembled, desire to recognize with gratitude the contribution made to our program by Dr. Roger Corbett, Director of the Experiment Station, College Park;

Dr. Maurice C. Pincoffs, Chairman of Committee on Medical Care; Reverend C. S. Hubbard, Pastor of First Methodist Church, Asbury Park, N. J.; Dr. T. B. Symons; Dr. H. C. Byrd; William Dern and H. R. Shoemaker.

We are grateful to the management and staff of the Lord Baltimore Hotel for their fine cooperation.

We extend our thanks to all those who, as speakers, committee members and workers helped to make this twenty-fifth annual meeting such an outstanding success, and especially do we recognize the extra hours put in by President Turner, Secretary Wise and others of the staff of our state organization.

Resolutions of the Associated Women of the Maryland Farm Bureau, Inc.

We pledge anew our confidence in our President, Mrs. Edwin D. Fry and other officers of Associated Women of Maryland Farm Bureau, Inc., and the Maryland Farm Bureau, Inc.

1. Since one of the grave problems confronting the brave women of England is the dire need for garden seeds during the coming planting season, we, the Associated Women of Maryland Farm Bureau, Inc., pledge our support to the National Officers of the Associated Women in securing the needed seeds such as peas, bush beans, bush limas, carrots and onions and sending same in one-half pint and one-half ounce packets to Donald Neville Willing, President of "American Seeds for British Soil Association," 18 East 70th Street, New York City.

To initiate this project we recommend that the Associated Women of the Maryland Farm Bureau, Inc., vote $25.00 from our funds.

2. That a delegate be sent each year from the officers or Board of Directors of the Associated Women to attend the Rural Women's Short Course at the University of Maryland. Expenses to be paid out of the funds of the Associated Women.

3. That the Board of Directors of the Associated Women consult with the Maryland Extension Service to learn why out-of-state trips offered to 4-H Club Girls are not made available to Maryland girls.

4. We recommend that the Extension workers be granted assistants in the counties where needed to assist in carrying out the rapidly expanding program of nutrition in defense and conservation.

5. That the County Boards of Directors be encouraged through state program to greater representation of the Associated Women on respective boards.

6. We recognize the importance of knowledge of nutrition and health in our defense program, and urge the Associated Women to cooperate in every way possible with our organizations to bring about a better understanding of the needs of our people, through study of their nutrition and health problems.

ANNUAL MEETING OF THE MARYLAND AGRICULTURAL SOCIETY

Friday, January 17, 1941

President P. C. Turner called the meeting to order at 12:00 noon. Secretary C. E. Wise, Jr., read the call of the meeting.

December 19, 1940.

To County Secretaries and
Affiliate and Associate Secretaries.

Notice of Annual Meeting of the Executive Council of the Maryland Agricultural Society

Dear Sir:

The annual meeting of the Executive Council of the Maryland Agricultural Society will be held January 17, 1941, at 11:00 A. M., Lord Baltimore Hotel, Baltimore, Md.

Blanks are enclosed for you to submit the credentials for the council members of your organization.

Very truly yours,

C. E. WISE, JR., *Secretary,*
Maryland Agricultural Society.

CEW:MD
Enc.

Chairman King of the Credentials Committee certified the Council members present and a quorum was declared:

Members of Council Present: *Allegany*—Harry Barton; *Anne Arundel*—Oden A. Sansbury, Oscar F. Grimes, C. O. Dulin; *Baltimore*—F. Ridgely Todd, Daniel Pearce; *Calvert*—John C. Ward; *Caroline*—Richard Blackburn, F. D. Zeigler; *Carroll*—John D. Young, Paul Green; *Cecil*—D. B. McDowell, Helen B. Astle; *Charles*—S. C. Linton, Robert J. Martin; *Dorchester*—Earle R. Keene, Melvin Milligan; *Frederick*—E. Earl Remsberg; *Garrett*—William Winterberg, Samuel L. Otto; *Harford*—Fred C. Jones, A. G. Ensor, J. Charles Rutledge; *Howard*—Roby H. Mullinix, G. Cashell Nichols; *Kent*—H. S. Leaverton, Frank O. Sutton; *Montgomery*—J. D. King, Ulysses Griffith, IV, J. W. Jones; *Prince George's*—William E. Duvall; *Queen Anne's*—Merton R. Shawn, T. J. Walbert; *St. Mary's*—F. Harvey Bailey, L. Bernard Goodwin; *Somerset*—W. F. Chaffey; *Talbot*—Francis G. Shillinger, T. C. Schwaninger; *Washington*—R. C. F. Weagly, J. K. Funk, William A. Cunningham; *Wicomico*—C. C. Phillips, Glenn Catlin; *Worcester*—Rillie P. Dennis; *Maryland Ayrshire Breeders Association*—A. I. Bell; *Maryland Crop Improvement Association*—Lawrence Ensor; *Maryland State Horticultural Association*—G. Rust Canby; *Maryland Horse Breeders Association*—Charles L. Hammond; *Maryland Co-op. Milk Producers, Inc.*—Wilson A. Heaps, John S. Bushey; *Maryland Tobacco Growers Assn.*—X. W. Garner, Sr., Jacob E. Carl, Oden Sansbury.

MR. TURNER: I will ask Mr. Wise to read the minutes of the previous meeting. Mr. Wise read the minutes.

MR. TURNER: You have heard the reading of the minutes. Are there any additions or alterations? If not, they stand approved.

I will ask Dr. Symons to present the Treasurer's report.

Dr. Symons presented the Treasurer's report.

MR. TURNER: What do you want to do with this report?

Mr. Reick moved its adoption as presented and Dr. Huck seconded the motion and it was carried.

Election of Officers

Mr. Chaffey moved the nomination of P. C. Turner for president; R. C. F. Weagly for vice-president; C. E. Wise, Jr., for secretary, and Dr. T. B. Symons for treasurer.

Mr. Spies seconded the nominations and also moved the nominations be closed and that a unanimous vote be cast for the ticket as presented, which was done.

There being no further business, upon motion and second, the meeting was adjourned.

MARYLAND AGRICULTURAL SOCIETY-MARYLAND FARM BUREAU, INC.

Financial Statement for Fiscal Year 1939-1940

Appropriation for 1939-1940 ..... $2,265.00

Expenditures:

Date	Payee	Classification	Expended
1939			
Nov. 4	Maryland Farm Bureau, Inc.	Off. Rent (Oct. & Nov.)	$ 106.66
30	Southern Maryland Horse Breeders' Assn.	Community Ex.	25.00
Dec. 26	Maryland Farm Bureau, Inc.	Off. Rent (Dec.)	53.33
1940			
Jan. 3	Peninsula Hort. Society	Community Ex.	50.00
24	Weant Press, Inc.	Ptg. (Programs An. Meet)	48.00
24	Geary Eppley	Travel (Balt. An. Meet.)	5.10
24	M. W. Golden	Travel (Balt. An. Meet.)	5.45
24	Evelyn Ramey	Travel (Balt. An. Meet.)	5.30
24	Karl F. Reiblick	Travel (Balt. An. Meet.)	6.00
24	Eleanor Wilson	Travel (Balt. An. Meet.)	8.79
24	A. W. Woods	Travel (Balt. An. Meet.)	1.80

	24	K. G. Connolly	Travel (Balt. An. Meet.)	8.20
	24	Maryland Farm Bureau, Inc.	Off. Rent (Jan.)	53.33
	29	P. C. Turner	Travel (Chicago, American Farm Bureau)	75.00
	29	L. P. Batjer	Travel (St. Hort. Meet.)	1.60
	29	F. P. Cullinan	Travel (St. Hort. Meet.)	9.10
	29	F. E. Gardner	Travel (St. Hort. Meet.)	1.60
	29	H. F. Hershey	Travel (St. Hort. Meet.)	19.15
	29	H. W. Prettyman	Travel (St. Hort. Meet.)	4.00
	29	W. S. Hough	Travel (St. Hort. Meet.)	5.45
	29	F. H. Wissler	Travel (St. Hort. Meet.)	16.75
Feb.	26	W. B. Kemp	Travel (Balt. An. Meet.)	10.25
	26	Anna Trentham	Community Ex.	12.50
Mar.	7	P. D. Brown	Community Ex.	50.00
	18	King Bros.	Ptg. (Grange An. Rpt.)	182.50
	18	Maryland Farm Bureau, Inc.	Off. Rent (Feb. & Mar.)	106.66
May	8	Maryland Farm Bureau, Inc.	Off. Rent. (Apr. & May)	106.66
June	12	Sterling Engraving Co.	Ptg. (Cut for An. Rpt.)	4.28
	12	Maryland Farm Bureau, Inc.	Off. Rent (June)	53.33
July	25	James M. Gwin	Travel (Community Meet.)	12.40
	25	Maryland Farm Bureau, Inc.	Off. Rent (July)	53.33
	29	20th Century Ptg. Co.	Ptg. Annual Report	755.95
Aug.	26	M. T. Johnson	Postage	196.77
	26	Maryland Farm Bureau, Inc.	Off. Rent (Aug.)	53.33
Sept.	23	Kenneth L. Turk	Travel (Community Meet.)	21.20
	23	John A. Conover	Travel (Community Meet.)	82.86
	23	Maryland Farm Bureau, Inc.	Off. Rent (Sept.)	53.37
			Total Appropriation	$2,265.00

This account is audited by the State Auditor.

MINUTES

OF THE

THIRD ANNUAL MEETING

OF THE

House of Delegates

Associated Women

Maryland Farm Bureau, Inc.

January 15, 1941

The third annual meeting of the House of Delegates of the Associated Women of the Maryland Farm Bureau, Inc., was called to order by the President, Mrs. Edwin D. Fry, of Montgomery County, in the Florentine Room of the Lord Baltimore Hotel, January 15, 1941, at 10 A. M.

Opening service was conducted by Mrs. F. D. Hayden, of Charles County.

Roll call of the delegates was made by Mrs. Harry L. Davis, secretary.

Minutes of the last annual meeting were read, approved and adopted.

Mrs. Edwin D. Fry, the President, made her annual address. Mrs. Harry L. Davis gave the Secretary's report.

C. E. Wise, Secretary-Treasurer of the Maryland Farm Bureau, Inc., also Treasurer for the Associated Women of the Maryland Farm Bureau, Inc., gave his report, showing that the Associated Women had a balance of $630.70.

Mrs. Fry appointed the following Resolutions Committee:

Mrs. W. Atlee Armour, Mrs. G. M. Hostetler, Mrs. W. W. Hopkins, Mrs. P. D. Brown, Mrs. Roy C. F. Weagly.

Song—"America The Beautiful"—was sung by the group.

Nominations for directors from the six districts were made by the delegates from said districts, and there being no nomination from the floor, a motion was made by Mrs. Hopkins, of Talbot County, and seconded, that the nominations be closed. Motion carried.

A motion was made, seconded and passed, that the nominations be accepted, and the ballot was cast by the Secretary.

The following directors were elected:

District No. 1: Mrs. Harry L. Davis, Frederick County.
District No. 2: Mrs. G. M. Hostetler, Montgomery County.
District No. 3: Mrs. P. D. Brown, Charles County.
District No. 4: Mrs. H. Dennis Reed, Harford County.
District No. 5: Mrs. C. J. Kern, Caroline County.
District No. 6: Mrs. Joseph Parker, Wicomico County.

P. C. Turner, President of the Maryland Farm Bureau, Inc., brought greeting. Mrs. Roy C. F. Weagly, newly elected Vice-President of the A. F. B. F., also brought greeting and gave a report.

The six directors then withdrew to nominate a Vice-President. While this was being done, Mrs. Fry called for reports of the delegates from the counties.

The report of the directors' meeting was made by the Chairman, Mrs. G. M. Hostetler.

The name of Mrs. C. J. Kern, of Caroline County, was presented.

Nominations from the floor were called for, but as there were none, a motion was made by Mrs. Davis and seconded, that the officer nominated by directors be accepted. Motion carried.

A motion was made by Mrs. P. D. Brown, of Charles County, and seconded, that the nomination be made unanimous. Motion carried.

The Secretary was instructed to cast the ballot.

Mrs. Fry then called for nominations from the House of Delegates for six voting delegates to sit in the business session of the Maryland Farm Bureau, Inc., on Friday morning.

The following delegates were nominated and elected:

District No. 1: Mrs. Keifer Funk, Washington County.
District No. 2: Mrs. Sterling Little, Carroll County.
District No. 3: Mrs. F. D. Hayden, Charles County.
District No. 4: Mrs. Dennis Reed, Harford County.
District No. 5: Mrs. C. J. Kern, Caroline County.
District No. 6: Mrs. L. Leon Spicer, Dorchester County.

Mrs. Fry read a letter from Mrs. Charles W. Sewell, Administration Director, who said at a recent convention of the Associated Women of the American Farm Bureau Federation, that one of the featured speakers was Mrs. Alfred Watt, of Canada and London. Mrs. Watt is the President of the Associated Country Women of the World.

During her visit Mrs. Watt told the delegates of the need for garden seeds in England in the coming planting season.

The officers of the Associated Women determined to set plans in motion to secure some of the needed seeds and send them abroad through the British War Relief Associated. Action taken on this letter will be found in Resolution No. 1.

92563

The afternoon session of the meeting of the House of Delegates convened at 1 P. M.

—THEME—

"Thoughts on Food and Health in Our Defense Program"

Miss Venia M. Kellar, Assistant Director Extension Service, University of Maryland, gave the following report:

EXTENSION WORK

1. The primary function of Extension Work is educational, and education must be dynamic, ever reaching for new horizons.
2. Extension carries to the people the newest methods of doing things in agriculture, home economics, largely the demonstration method.
3. 1940 shows our greatest increase in interest, enrollment and attendance in home demonstration work.
4. We reach the masses through publicity, group meetings, personal contacts.
5. Local leaders.
6. Nutrition—Better Family Living—more and better gardens.
7. The Rural Women's Short Course.

Foods and Nutrition

All project chairmen in foods and nutrition have sought from the agent, bulletins, books, and help on individual problems in order to aid their clubs. They give one- or two-minute talks on nutrition throughout the year. Sometimes they become discouraged. Recently, at a meeting a chairman said quietly to the agent: "I wonder if these old ladies will ever be willing to change their ideas of nutrition and eating habits. You and I will never influence them, I'm afraid."

A white-haired woman who had evidently overheard her, turned. "You have influenced us," she said. "My husband never ate anything except white bread, potatoes, pork or beef, and pie for dinner. He said white cabbage and turnips were hardly fit for people, and anything green was cattle feed. When I first began giving him leafy vegetables, he raised an awful row, and didn't eat them. I just stayed quiet and when he finished dinner, I said: 'You left sompin, Henry, and you won't get no pie until you eat it!' He looked at the kale and says, 'What kinda pie you got?' I'd made cherry, being's that's his favorite. He knew I meant it, so he eats some of the kale and then to save his face, says, 'This ain't so bad. Why'd you never give it to me before?' I had sense enough not to remind him that he never would eat it. Now he eats green things regular. I try to cook them so's they're temptin' and I always give him sompin he likes along with the leaves. Men don't mind giving you your way, if they think they're getting theirs too." And the agent reflected that it takes psychology as well as knowledge of nutrition to feed the family properly.

Terminal? or Germinal?

"A sower went forth to sow. And when he sowed, some seeds fell by the wayside, and the fowls came and devoured them. Some fell upon stony places where they had not much earth; and forthwith they sprung up. And when the sun was up, they were scorched, and because they had no root, they withered away. And some fell among thorns, and the thorns sprung up and choked them. But others fell into good ground, and brought forth fruit, some a hundred-fold, some sixty-fold. some thirty-fold."

A Home Demonstration Agent is a sower. Some of her seed of information and influence fall upon unreceptive minds, and old habits come and devour them. Some fall upon minds which have not much depth. They are eagerly received, merely because they are "different" and shallow minds always seek stimuli from outside themselves. But when these minds realize that only individual practice will provide continued growth, they allow the seed to wither away. And some seed fall among hostile ideas of selfishness, and these ideas spring up and choke them before they can grow. But some seeds fall upon receptive minds of richness and depth, and put forth root long before they send up to the light their green blade of evidence that they have germinated. They grow slowly and steadily, withstanding old habits, withstanding the impulse to give up after the newness has passed, withstanding hostile ideas of tolerance; and they bring forth fruit which benefits themselves, their families, and their communities. These germinal seeds compensate for all those which have been terminal.

Addresses were made by Dr. Cameron, representative of the Committee on Medical Care, Maryland State Planning Commission, and Dr. E. V. McCollum, Johns Hopkins University.

A panel discussion led by Miss Marie Mount, Dean of Home Economics of the University of Maryland, followed these addresses. Among those on the panel with Miss Mount was Mrs. G. M. Hostetler, President of the League of Women Voters of Montgomery County. Mrs. Hostetler presented Miss Mount to the delegates.

Others were: Mrs. C. J. Wagonette, Executive Secretary of the National Council of Mothers and Babies;

Miss Margaret McPheeters, Nutrition Specialist—University of Maryland;

Mrs. Fred H. Cook, Director of Health of the Maryland Congress of Parents and Teachers;

Mrs. Linwood Sutton, representing the Associated Women of the Maryland Farm Bureau, also a homemaker;

Mrs. Peyton Whalen, President of the Montgomery County Federation of Women's Clubs;

Dr. Roger Corbett, Director of Experiment Station, University of Maryland.

Mrs. R. C. F. Weagly was selected as the voting delegate from Maryland at the Annual Meeting of the A. F. B. F., 1941.

There being no further business, the meeting adjourned to meet at the call of the President.

Respectfully submitted,

MRS. HARRY L. DAVIS, Secretary.

MINUTES

OF

THIRD ANNUAL CONFERENCE

OF

Maryland State Council of 4-H Clubs

January 15, 1941

The semi-annual meeting of the Maryland State Council of 4-H Clubs was held Wednesday, January 15, 1941, in the Lord Baltimore Hotel, Baltimore, Md. The meeting was called to order by the president, George Lechlider, Montgomery County.

Minutes of the August meeting were read and approved.

Thirteen counties were represented with an attendance of 58 members.

The treasurer's report, showing a balance of nineteen dollars and thirty-eight cents ($19.38), was approved.

A report of the Safety Seals Committee was made by the chairman, Henry Koller.

It was resolved to have 4-H safety stickers made and distributed among the counties, to be sold at a small fee.

A report of the concessions committee was given by the chairman, Geraldine Brown. After some discussion, a motion was adopted that the State Council sell soft drinks and ice cream at Club Week. The committee will meet at a later date and complete plans.

An outline report of outstanding programs of county councils in 1940 was given by Walter Harmsen, Vice-President of State Council.

The Montgomery County Council presented the following resolutions:

Whereas, we consider that interstate and national competition for girls is of educational value;

Whereas, there are no out-of-state trips for the girls of Maryland; therefore, be it

Resolved, That it is the sense of this meeting that the girls of this State be allowed to participate in interstate and national competition. And be it further

Resolved, That the girls of this State be given out-of-state trips as are the boys, especially the trips provided through competition programs offered by the National Committee on Boys and Girls Club Work.

Following remarks by Miss V. M. Kellar, Miss Dorothy Emerson, and a group discussion, motion was carried that this resolution be considered

by a committee of girls which would consult with Miss Kellar and Miss Emerson, and report at Club Week.

Miss Helen Mae Bryan gave an interesting report on the American Country Life Conference held in West Lafayette, Indiana.

Miss Jean Shippey, U. S. Department of Agriculture Fellowship Student, discussed—"A 4-H Seven-Point Program for National Defense."

The afternoon session opened at 1:30 P. M. in the I. O. O. F. building with a round-table discussion of the "4-H Seven-Point Program for National Defense," led by Miss Emerson.

After some discussion, the group divided into seven groups, each discussing one of the seven points. Afterward a general assembly was held and a report from each group received.

Recommendations for council programs for National Defense were compiled.

Motion was carried to pay the sum of $9.00 to Daddy Jenks, who had paid for the use of discussion rooms in I. O. O. F.

Letters to delegates from Daddy Jenks concerning our defense were distributed.

Respectfully submitted,

MARTHA MARY VIRTS, Secretary-Treasurer.

PROCEEDINGS

OF THE

FORTY-THIRD ANNUAL MEETING

Maryland State Horticultural Society

Y. M. C. A. Auditorium, Hagerstown, Maryland

January 8th and 9th, 1941

The meeting began at 9:30 A. M. with the showing of a sound movie entitled, "The River," by the Soil Conservation Service. President Joseph G. Harrison called the meeting to order at 10:15 A. M. and the invocation was delivered by Reverend Paul B. Watlington, Pastor of First Baptist Church, Hagerstown.

Mayor Richard H. Sweeney welcomed the growers on behalf of the City of Hagerstown.

The President called for the report of the Secretary-Treasurer.

REPORT OF THE SECRETARY

A. F. VIERHELLER

College Park, Maryland

The year, 1940, will go down as a year of real, active cooperation between growers and between Horticultural Societies. To your Secretary, the year's activities were a combination of Society and Extension Service activities, for the University of Maryland Extension Service is interested in anything that affects the welfare of the fruit growers. The Service made it possible for your Secretary to attend the various meetings and to carry on some of the activities that followed the meetings.

With deep regret, I announce the death of Charles P. Close, a former Secretary of this Society, and also the sudden passing of David M. Wertz, long a member of this Society. Fruit growing lost two pioneers in the passing of these men.

During the year, the Society has been closely associated with the National Apple Institute, a country-wide affiliate of the apple advertising groups; The International Apple Association which has long worked for the best interests of the apple industry; and The National Planning Committee, composed of representatives of 24 apple-producing States. Mr. J. A. Cohill is Maryland's representative on the Committee.

Through the efforts of the National Planning Committee, two regional meetings were held at which the Eastern and Western apple boxes were standardized to two sizes, the capacities being decided as the bushel and the 1⅛ bushel, and each of these boxes was specified in two measurements, to allow for regional market or grower requirements.

After the National Planning Committee had decided that tree removal was a means of reducing the production of poor grade apples, the various

Horticultural Societies and the Committee members cooperated so well that the Apple Tree Removal clause was made a part of the National Soil Conservation Act, and is now a working part of our Maryland program. As in the past, our Society has endorsed Appalachian Apple Service as our advertising medium, and your Secretary is acting as Maryland representative of this organization. I commend it to the consideration of every Maryland grower.

Through the efforts of various individuals and Societies, the Eastern By-Products Laboratory at Philadelphia, conducted by the Federal Government, has begun some fine work in apple by-products, to increase the possible uses of apples. Also, among the items which have come before our Society have been the Chain Store Bill, southern rail rates, and Canadian apple imports. We have been fortunate in having the spray residue tolerances increased by the Federal Government.

Our annual summer field meeting was held in cooperation with the West Virginia Horticultural Society, following the fine results of combining our summer meeting with the Pennsylvania Horticultural Association in 1939. The 1940 meeting began with an inspection of the Kearneysville Fruit Experimental Farm, then visiting the orchards and packing houses of E. L. Goldsborough, Shepherdstown, and Dr. A. B. Eagle, Martinsburg. We owe great thanks to these men for the fine hospitality extended, and to the officers of the West Virginia Society and the staff at the Kearneysville Farm for their full cooperation in making the meeting so pleasant and instructive.

During the year our Society joined the American Pomological Society and National Apple Institute, and we have become more closely affiiliated with the Maryland Farm Bureau and the Maryland Agricultural Society.

The Horticultural Council, consisting of representatives of the horticultural interests of Maryland (florists, vegetable growers, nurserymen, fruit growers and canners) met and considered the needs of horticulture, and submitted some budget requests to the Governor. The items covered for fruit growers were: $2,000 for fruit shipping-point inspection revolving fund; $3,500 for University Horticultural Farm equipment; $1,000 for a spray residue laboratory in Western Maryland; and $3,000 for peach disease research. President Harrison appeared before the Governor to explain these needs, and it is hoped that they will be considered.

Following a new procedure, there will be an annual meeting of the Horticultural Council in Baltimore in connection with the Farm Bureau and Agricultural Society Meeting, at which time the entire needs of the industry will be considered and recommendations made to the Farm Bureau Legislative Committee and the Legislative committee to be set up by our Society, to act cooperatively.

I thank the Executive Committee and officers for their cooperation, and hope for its continuance. Remember to visit the commercial and educational exhibits in the City Market House basement.

REPORT OF THE TREASURER

A. F. VIERHELLER

College Park, Maryland

The records show receipt of $1,916.05 during the year, this cash including Appalachian Apple Service subscriptions and Maryland Fair Board appropriation for State Apple Exhibit. The balance on hand, December 1, 1940 was $202.12, which, added to account in savings deposit, gives a total cash balance as of December 1, 1940 of $526.82. I request that the books be audited by Committee.

PRESIDENT'S ADDRESS

JOSEPH G. HARRISON

Berlin, Maryland

Fellow Fruit Growers and Members of the Horticultural Society:

The topic which your President has chosen for his short talk covers a multitude of sins. The subject: "Some Weak Spots In The Fruit Industry," has been discussed at all Horticultural meetings; however, in nearly all cases the weak spot hit upon one limited phase of the industry, either from a production or marketing standpoint.

I am only going to attempt to bring to your mind the weak spots in the industry as I have observed them in the past few years:

Weak Spots in Marketing as It Affects the Fruit Grower: In marketing we must consider the number of times our product is handled from the time it leaves our packing house, or storage, until it is in the hands of the retail customer. Much can happen to a package of fruit which is packed properly at harvest, then placed in storage, from storage to the distributor, to dealer, to retail store, then by the time it gets to the retail customer great changes have taken place. Sometimes the condition of the fruit is terrible, due mainly to mishandling and time consumed from the time it leaves the storage until the retail customer makes the purchase. It looks as though apples have to be handled much faster and purchased in smaller quantities by the retailers in order to have the fruit in a good, crisp condition when the consumer makes his purchase. Some of the terminal markets are being revamped to make this *streamlined* marketing possible, under sponsorship of the U. S. Bureau of Markets.

Weakness in Not Removing Boarders: This means tree removal of undesirable varieties and blocks of trees which are marginal, or submarginal under existing market conditions. Personally, I believe nearly all apple men have some marginal trees which need removing. I would like to urge everyone here to survey his orchards and give serious thought to removing the boarders.

Small and Off Grade Fruit: Probably apple juice offers one of the greatest undeveloped markets for consuming millions of bushels of apples which are undesirable from a fresh market standpoint. With the advent of the European War, the apple grower was left holding the bag on small size apples. These apples are excellent for apple juice. With the research work that is going on at the present time, it is my belief that apple juice will prove to be one new outlet that can be developed to such an extent that there will soon be a shortage of juice stock in many sections.

I want to say in conclusion, that there are many more weak spots in the industry, but the ones mentioned appear to be the ones which concern us most at the present, and we can rest assured that weak spots in the fruit industry are not going to be any less than they are at the present time.

BUILDING UP OUR ORCHARD SOILS

A. L. SCHRADER, Research Pomologist, University of Maryland,

College Park, Maryland.

The capacity of an orchard soil to maintain good growth and high productivity of fruit trees probably determines a large part of the success of any given orchard, a fact which now is more keenly realized as margins of profit are more difficult to obtain. Growers are finding under Eastern conditions that our orchard soils can be easily depleted of fertility or quickly eroded to a point that the trees no longer respond in good growth and fruitfulness. Much of this fertility loss has been due to over-cultivation, or poor soil management. We call it a problem of soil management but there entails within the problem several fundamental items such as organic matter, nutrient supply, moisture supply and aeration, all of which are inter-related. Unless all four of these items are carefully considered in the management of a soil, the repair of any one of them may be wasted in any effort to improve the soil.

What is a Poor Orchard Soil?

Let us consider the poor orchard soil, poor in fertility but nevertheless well-drained and not too shallow. It is lacking first in organic matter, but also in *amount* of organic matter and in *depth* of the organic layer, although few have realized the importance of the latter factor. Lack of organic matter diminishes the supply of moisture by lowering the penetration of rains and increasing run off; decreases the sponginess of the soil, thereby making a more compact soil of poor aeration; and lessens the availability of the soil nutrients, whether they are applied or already in the soil. A shallow layer of organic matter means that most of the smaller feeding roots are closer to the surface and hence the tree suffers more readily for lack of moisture and soil nutrients when the upper few inches of soil dry out. Thus we have the vicious circle

that clearly shows the interdependence of the four essentials. If a soil is not already poor in these essentials, the practice of excess cultivation causes the depletion of organic matter, especially under the higher temperatures of southern conditions, which paves the way for erosion, poor aeration, less moisture and less mineral nutrients.

Such conditions make it more difficult to grow orchard covers which are necessary to replenish the loss of soil organic matter.

What Means Are Available To Build Up Our Orchard Soils?

Usually the grower is not asked to think through a confusion of minor elements, organic matter and humus, water conservation, fertilizers or mineral elements, cover crops, sods, mulching, cultivation, aeration, etc., but is presented with only one phase of the picture in its detail, leaving him to gather the other pieces of the jig-saw puzzle, perhaps with some pieces missing. But the building of an orchard soil or even the maintenance of such soil necessitates that we not only think of all these variables, but to adopt some practices that will take care of all of them. What are some of the better practices that will take care of all of them? What are some of the better practices that can be used *economically* to accomplish this buildup of fertility?

Mulching—More and more evidence is accumulating to show that this practice stands in first place an an orchard soil improver. Not only adding organic matter but conserving moisture to a high and efficient degree and also causing the liberation of soil nutrients, as nitrogen, phosphorus and potassium in the lower layers of soil. Such mulching requires the purchase of straw or other material, or the growing of the mulch in the orchard or in adjacent fields. In young orchards it is practical to grow the mulch between the rows, but in older orchards insufficient material is provided in this way. In the establishment of the young orchard, the use of a strawy manure as a mulch around the young trees is greatly to be advised during the early years of the tree growth when not a great deal of material is required. Such manure mulch not only conserves moisture but furnishes mineral nutrients, particularly the minor elements, such as boron, that occasionally are insufficient for the young tree. Some growers are finding that manure, when available at a fair price, is yielding good returns even in the bearing orchard.

In the use of mulch, it is not out of order to warn that strict attention must be paid to the control measures for mice and for prevention of fire in the orchard. The use of mulches are new for the peach orchard, but good results have been secured, although here again, attention must be given to mouse control and the fire hazard.

Also of importance is the necessity of applying more nitrogen in the fertilizer application to the tree that is mulched, especially in the first year when the straw decomposition may tie up some of the nitrogen. In later years the nitrogen tied up by the decomposition of the straw

will be released and it is possible to actually decrease the annual nitrogen application.

Sods—One of the most economical as well as effective of orchard soil improvements is the establishment of a good sod cover, such as grasses, lespedeza, sweet clover, alfalfa, Ladino clover, or mixtures. The important consideration is to obtain a good growth of the kind of sod which will be established easily in any particular section, avoiding deep-rooted sod covers for the shallow soils, as such covers will compete too heavily with the tree for the soil moisture in the lower depths of the soil. The development and maintenance of a good sod in the orchard requires attention to such items as application of lime to obtain the proper adjustment of acidity for the crop to be grown, and the annual application of a complete fertilizer high in phosphorus, (as a 4-12-4), drilled at the rate of 500 pounds over the entire orchard area, preferably as an early fall application. In soils where magnesium may be deficient, it is advised to use dolomitic lime in the adjusting of acidity. In any event the acidity should be held with the range of pH 6.0 to 7.0, preferably around 6.5 for leguminous crops, and it is necessary to check the acidity level every two or three years and apply lime accordingly.

In handling the sod cover, cultivation can be reduced to a minimum but some cultivation is necessary, such as an annual light disking in fall or early spring to break a tight sod, and in the case of annual lespedeza to insure a good reseeding. Also, after a sod has been in the orchard for five or six years, it is an excellent plan to turn under this sod for one season, growing a summer cover crop and re-establishing the sod in the early fall.

A good sod cover will use moisture in competition with the tree, but often the soil under sod will have more moisture than a similar cultivated soil because the sod prevents the run-off of rains and all or nearly all of the rainfall is utilized. To insure the minimum of competition with the tree, particular attention must be paid to the mowing of the sod, especially during dry periods. In the case of the young apple or peach orchard in sod, cultivation of the tree rows must be practiced or a satisfactory mulch established, including some stable manure. No satisfactory sod system has been worked out for the bearing peach orchard, but the use of a good mulch is meeting with success under sod conditions in some soils. A shallow-rooted sod, such as Korean lespedeza would be desirable.

Annual Cover Crops—One of the common means of controlling erosion and of increasing fertility of the orchard soil lies in the seeding of annual summer and winter cover crops. One essential of the practice, so often missed, is the need to grow a large bulk of plant material, well-matured so that it does not decompose too readily. This thought is contrary to the former idea of turning under succulent green material that readily breaks down and is used up. Another essential is that the cover crop must be fertilized before seeding, using about 400 pounds

of a 4-12-4, even with legumes, in order to insure maximum growth of the cover. A third point is to keep the early seeded summer cover away from the young tree to a distance of six feet so as not to compete with the growth of the young tree in the early years (1). Winter covers should be allowed to continue growth in the early spring to get maximum bulk of plant material. On slopes which are subject to ready erosion, the winter cover should not be worked in too thoroughly but can be mowed or lightly disked to leave a stubble of material to hold the soil.

Among summer covers to be seeded June 1-15 can be listed soybeans, cowpeas, millet, Sudan grass, corn, and sorghum. Sweet clover may also be used if sown early in the spring. The choice of the cover depends upon the price of seed and the relative adaptability of the cover crop to any given section and soil. Sudan grass or sweet clover covers have an advantage for the bearing orchard in that these crops can be mowed during dry periods and will continue to grow from new growth of the stubble. However, a heavy sweet clover crop may interfere with orchard operations. Legumes which are inoculated have an advantage of adding nitrogen to the soil. Sometimes weeds can be used as a summer cover if the weed growth is sufficient to give some bulk of material which too often is not the case.

A growing winter cover can consist of Abruzzi rye or winter vetch, or preferably a mixture of both these crops, sown between Sept. 1 and Sept. 15 to insure a good fall growth (Figures 1 and 2). Wheat may also be used as a winter cover. In case no winter cover can be sown to follow the summer cover, the summer cover after killing by frost, can be broken down with a disk or allowed to stand until spring. Sometimes mowing of the summer cover is required to facilitate fruit harvest, and the cut material can be allowed to lie.

In the development of a young orchard, it is very desirable to grow two cover crops each year, that is, to grow a summer cover, seeded June 1, followed by a winter cover, seeded Sept. 1 which means the incorporation of larger amounts of organic matter, and, moreover, keeps the ground covered nearly 11 months of the year with a minimum of cultivation. This system also works well in the bearing peach orchard.

Terracing and Contour Planting—These two practices are designed to conserve moisture and control erosion on sloping sites. There is no question about the value of either practice, and more growers should consider carefully the feasibility of using terracing or contours for new plantings. Terracing, of course, is superior to contour planting for conservation of moisture and control of erosion.

Sub-soiling—Any soil improvement program based on practices, outlined previously, assumes that no hard-pan or plow-sole is present in the orchard soil. In case a plow-sole or hard-pan does exist, sub-soiling has its place, especially before a planting is made. Cutting of large roots in an established orchard by use of a sub-soiler is a bad practice.

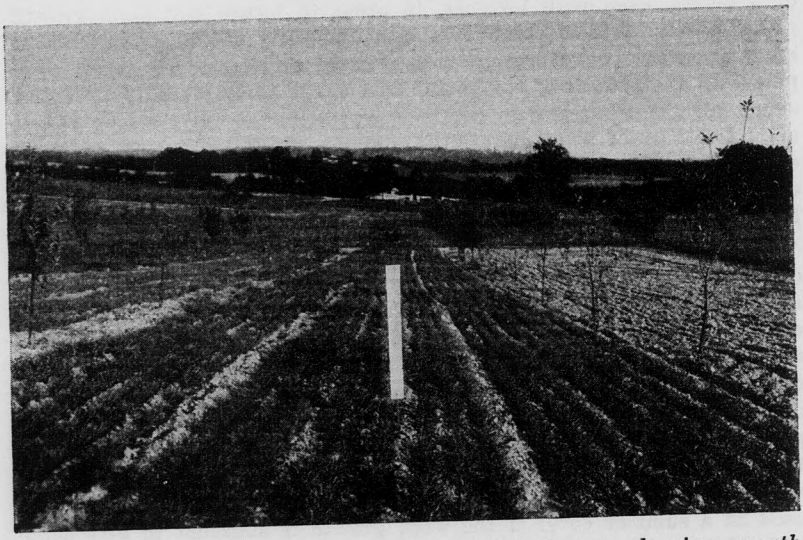


FIGURE 1. *A rye and vetch cover crop, seeded Sept. 1, showing growth of cover made by Oct. 1. Growth of the cover in the fall is essential to prevent erosion.*

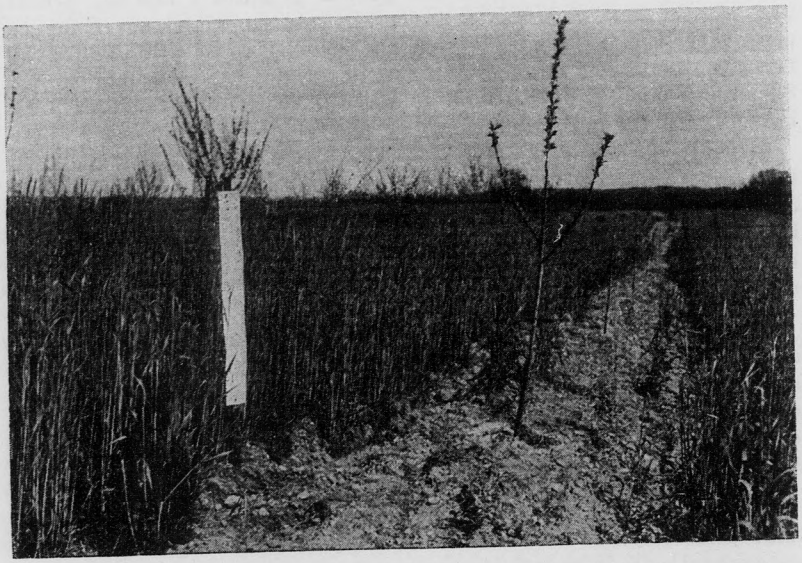


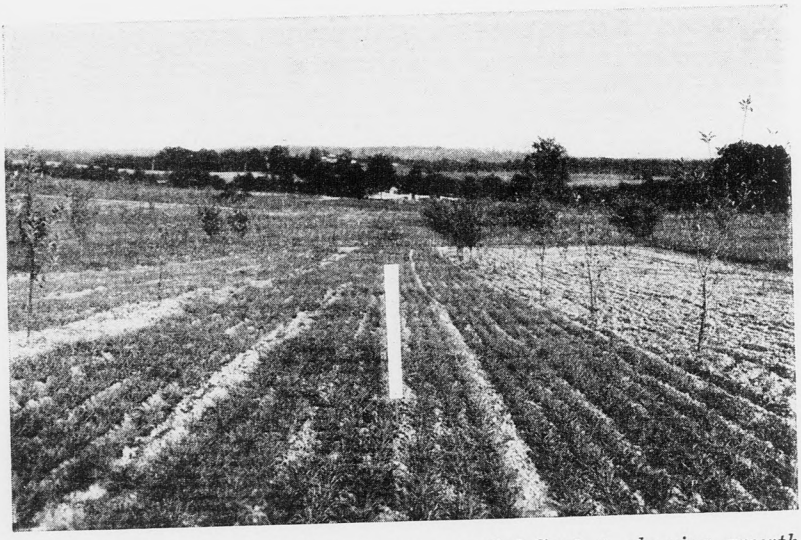
FIGURE 2. *A rye and vetch cover ready to turn under in the spring, April 30. Note the rye is nearly 3 feet tall which means a large bulk of organic material.*

Some Results in Building up an Orchard Soil

In 1928, eight acres of a Sassafras gravelly loam low in fertility was seeded June 1 to a soybean cover crop, fertilized previously with 300 pounds of 4-8-5 and limed. On Sept. 15, the soybean cover was plowed under and a cover of rye and vetch was sown. The rye and vetch were plowed under about May 1, 1930. This double cover-crop treatment was repeated in 1929 and 1930 over the entire block. In March, 1929 one-year Delicious and Williams apple trees were planted 20′ x 20′, so that 17 half-acre plots could be laid out with 23 plot trees and 23 guard trees for each plot. The sequence of plots is given in Table 1. Each plot as a rule had a slight slope from west to east and the soil varied from a gravelly loam to a sandy loam, but low-fertility throughout. In the spring of 1928, the depth of organic layer was only five to six inches. From 1931 to 1936 each plot received cover crop treatments, as noted in Table 1, plus 150 pounds of 4-8-5 fertilizer per plot applied annually before sowing of the cover, or in the fall on the sod or cultivated only plots.

Table 1.—*The Amount and Depth of Organic Matter in an Orchard Soil as Affected by Various Cover Crops Compared to Cultivation.*

Treatment	Organic Matter in the Soil	
	Per cent, June, 1935	Depth in Inches June, 1936
1. Grass Sod	2.11	8.35
2. Rye and Vetch Sept. 1	2.34	9.45
3. Grass Sod	2.27	8.83
4. Clean Cultivation till Oct. 1	1.95	8.65
5. Millet June 1—Rye and Vetch Sept. 1	2.35	9.08
6. Soybeans June 1—Rye and Vetch Sept. 1	1.90	10.10
7. Clean Cultivation till Oct. 1	1.31	8.20
8. Sudan Grass June 1	1.97	9.02
9. Millet June 1	2.41	7.70
10. Clean Cultivation till Oct. 1	0.70	6.87
11. Rye and Vetch Sept. 1	2.06	8.00
12. Weed Growth after June 1	2.69	8.15
13. Clean Cultivation till Oct. 1	1.68	6.72
14. Weed Growth after July 1	1.82	7.60
15. Soybeans July 1	1.69	9.95
16. Clean Cultivation till Oct. 1	1.52	5.92
17. Soybeans June 1	2.48	9.42
Average all cover crop plots except plots 1 and 2	2.16	8.78
Average all plots cultivated till Oct. 1	1.43	7.27



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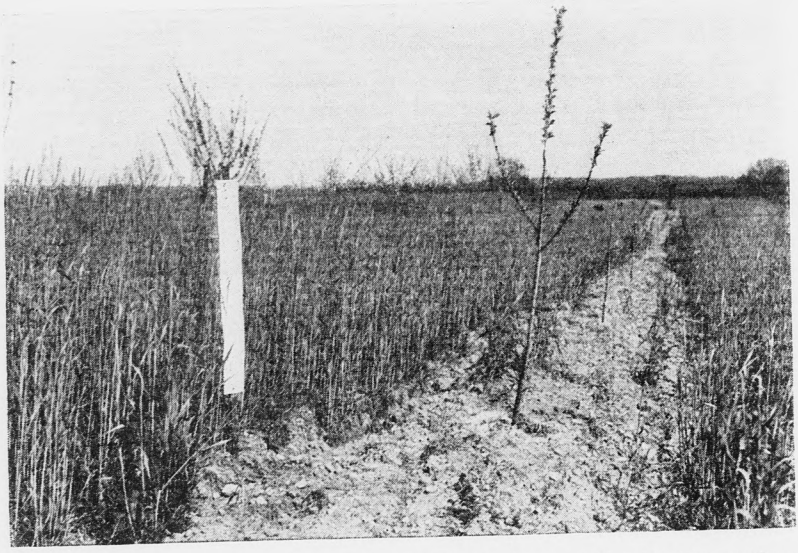

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Average all cover crop plots except plots 1 and 2	2.16	8.78
Average all plots cultivated till Oct. 1	1.43	7.27

The effect of the various covers on the total organic matter content and on the depth of the organic layer or top soil, compared with the effect of continuous cultivation without covers during the five year period from 1930 to 1935, is shown in Table 1. The average difference for all cover crops against all adjacent no cover crop plots is very striking, 2.16 per cent organic matter vs. 1.43 per cent, or a difference of approximately 50 per cent in favor of cover crop plots. Also, the average depth of the organic layer is greater by one and one-half inches on the cover crop plots. These differences are statistically significant, computing the positive differences of adjacent plots only. Increasing the depth of the organic layer is particularly important, and not usually considered in studies of orchard soils; however, the depth of the organic layer determines largely the development of feeding roots and their ability to function in obtaining water and mineral nutrients, especially during short drouth periods that may dry out the upper four or five inches of soil. In other words, the deeper the organic layer the better chance the feeding roots have to obtain water and mineral nutrients during the entire season.

Comparisons among the various covers are not easily made in this experiment but certain of the comparisons are readily made with assurance, based upon the figures, as given, and observation and cover crop weights during the experiment. Thus, soybeans seeded June 1 have increased the per cent of organic matter much more than the same crop seeded a month later, July 1, largely due to the much poorer growth and stand of the soybeans of the later seeding. Likewise a weed cover starting June 1 was superior to a weed cover started July 1, and again observations, as well as cover crop weights explained the difference on the basis of poorer weed growth starting July 1. The high per cent of organic matter of the June 1 weed cover possibly is due to the slow decomposition of the weed growth, largely crab grass. Millet followed by millet year after year resulted in a gradually poorer growth each year until finally millet grew only 12 inches high compared with a rank growth and stand in the early years. Double cover cropping (Treatment No. 6, Table 1) of soybeans followed by rye and vetch made a notable increase in depth of organic layer, and can be attributed to the larger bulk of rye and vetch stimulated by the soybeans, sometimes necessitating plowing instead of disking to get the cover down.

Another effect of the covers was to practically eliminate erosion, which became increasingly serious on the continuously cultivated plots, even though only a slight slope existed.

Conclusions

Our orchard soils can be built up if measures are taken to promote good cover crop and sod growth of such covers that grow best in a given section. Liming, complete fertilizers and mulching are some means to greatly assist in any orchard soil building program.

Literature Cited

1. Schrader, A. L. Competition of cover crops with young apple trees. Md. Fruit Grower *6* (5): May, 1936.

(NOTE—The presentation of this paper was illustrated with a series of 25 slides.)

SPRAYING TO CONTROL PREHARVEST DROP OF APPLES

L. P. BATJER, Pomologist, Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, Department of Agriculture, Beltsville, Maryland

Losses resulting from preharvest drop of apples have long been a serious problem with many growers. So likely is a grower to lose a considerable proportion of the crop from dropping, that it is often necessary to harvest some varieties before they have attained satisfactory color and maturity. Many McIntosh growers are forced to resort to a compromise between satisfactory color and loss from dropping. "If they would stay on the tree a few more days, color would improve but we can't afford to take the chance of losing from a quarter to half the crop from dropping" is a familiar remark of many growers of bad dropping varieties.

Considerable interest has been shown in the new hormone or harvest sprays found to be effective by the Bureau of Plant Industry, U. S. Department of Agriculture, in retarding the preharvest drop of apples.

Out of a number of substances generally classified as plant hormones or plant growth substances which were tested in 1939 at the U. S. Horticultural Station, Beltsville, Md., two chemical compounds, naphthalene acetic acid and naphthalene acetamide, proved to be outstandingly effective in reducing preharvest drop. The quantity of these materials required to be effective is so slight as to be almost unbelievable. Concentrations of .0005 percent to .001 percent were found to be very effective when properly and timely applied. A .001 percent is equivalent to a weight of 4 grams (about one teaspoonful) in 100 gallons of water. A spray stronger than the above is likely to "stick" the fruit of some varieties so tightly that difficulty will be encountered in picking, since spurs may be broken off or stems pulled from the fruit. In all of the experimental work at this Station the pure hormone has been used. The correct amount of naphthalene acetic acid or napthalene acetamide has been weighed out, dissolved in a small amount of alcohol and poured directly into the spray tank with the addition of a spreader or sticker, the choice of which seems to be immaterial.

Since the pure hormones are not readily soluble in water, and due to the impracticability of the grower measuring such small amounts accurately, there are available on the market at the present time several proprietary commercial preparations which are now being advertised and used by orchardists. These commercial preparations consist

of a weighted amount of hormone mixed with a powdered filler or liquid solvent designed to facilitate quick solution when added to the spray tank.

It is the purpose here to outline briefly the development of these sprays during the past two years and what can be expected of them based on the experimental evidence to date.

For a better understanding of the discussion to follow, it would seem appropriate to briefly outline the nature of the process responsible for the preharvest drop of apples. In a recent article in the American Fruit Grower, Dr. Monroe McCown gives the following description of the changes that take place at the point of contact when the fruit stem abscisses or separates from its base or point of attachment: "The outermost layers of the walls of mature cells in the base of the fruit stem first swell and then these and inner portions of the outer walls dissolve away, allowing the separation of the cells." Dr. McCown states further that abscission or cell separation may begin in the outer bark of the stem and proceed inward, or with some varieties cell wall dissolution and separation start in the center of the stem and progress outward. McIntosh is given as an example of the latter type. The specific effect of the hormone solution on fruit abscission is not known but it is obvious that the spray once absorbed retards or temporarily prevents the above processes from taking place.

Time of Spray Application and Duration of Effect

Experimental work performed in 1939 indicated that the effective period of the spray, if properly timed, for most varieties was from 2 to 3 weeks or longer. Tests performed with McIntosh in western New York during that year showed an effective period of only 8 to 10 days following spray application. These results with McIntosh suggested that if greater protection than this period is desired a repeat application could be made 4 or 5 days following the first application. In 1940, tests were made with McIntosh in order to obtain information on this phase of the problem. The trees used were 15 years old, located at Beltsville, Md., and had an average crop of 10 bushels per tree. Results are given in Table 1.

As can be seen from the figures, all treatments were effective for 10 days following the first spray application. The single spray treatment (No.1) began to "run out" between the 10th and 12th days, while all of the repeat sprays seemed to be effective for 2 or 3 days longer. By the 14th day all trees were in high state of drop, irrespective of treatment. The fruit was highly colored and was a few days past the proper harvest date. As indicated in the table, these trees were again sprayed at this point in order to ascertain if it is possible to stop drop once it is well under way. The figures in the above table give a very definite answer to this question. Apparently if the changes resulting in abscission (mentioned above) have advanced beyond a certain point, hormone sprays are

Table 1.—*Effect of repeat spray on McIntosh drop.*

Treatment No.	No. tree per treatment	Nature of treatment	Average accumulated percent drop of original crop						
			Days after first spray						
			6	8	10	12	*14	16	18
1	5	Sprayed Aug. 23 only	1.9	2.5	3.0	15.0	38.6	62.7	76.0
2	5	Sprayed Aug. 23 plus repeat spray 2 hrs. later	0.6	0.8	1.5	7.8	26.1	55.5	65.0
3	5	Sprayed Aug. 23 plus repeat spray 3 days later	0.4	0.4	0.6	3.0	14.5	42.3	58.4
4	5	Sprayed Aug. 23 plus repeat spray 7 days later	1.9	2.6	3.3	5.7	16.4	55.2	72.8
5	5	Unsprayed	2.6	4.7	11.4	38.5	52.0	66.4	72.2

*All treatments resprayed (except treatment No. 5) at this point.

ineffective in retarding the process, and dropping results at about the same rate as if no spray were applied.

Of interest is the fact that the treatment receiving a repeat application 7 days following an initial application increased the effective period only 1 to 1½ days longer than the single application treatment. In this instance it seems likely that when the repeat spray was applied, abscission processes were so well defined in such a large proportion of the fruit that only a slight effect resulted. That the "3-day repeat treatment" was somewhat more effective than the 7-day treatment would seem to lend support to the above contention. The slightly better results of the 2-hour repeat spray as compared with the single spray was no doubt due to a more complete spray coverage.

In this experiment with McIntosh, little benefit was derived from sprays following initial applications. With this variety the maximum effective period seems to be generally from 10 to 12 days with one application, if accurately timed. Repeat sprays would seem to be of doubtful value in extending this period except in cases where the initial spray was applied too far in advance of maturity.

In order to obtain the greatest benefit in both intensity and duration of effect, it is apparently necessary to spray just at the beginning of fruit drop. From the practical standpoint, such a procedure may be difficult to execute. One alternative would be to spray ahead of the drop when the fruit is still firmly attached. If it developed later that this application was made too far ahead of drop and it seemed advisable to delay harvest beyond the protective period of this spray (10 to 12 days), a second spray could be applied 7 or 8 days following the first.

From the above discussion it can be seen that correct timing is extremely important in the case of McIntosh. With the spray properly timed one should be able to get 10 days of good control. This would enable many McIntosh growers to get added color and finish without suffering a heavy loss from dropping. McIntosh orchards within the same vicinity generally cannot be sprayed at the same time since they will vary in a number of factors affecting maturity, such as age of tree, soil type, fertilization and general culture.

One might well raise the question as to the practicability of these sprays in view of the rather exact timing necessary for success. Many McIntosh growers experimented with hormone sprays this past season. Some failures were recorded but successes were greatly in the majority. It is perhaps better to spray too early than too late. Then, if one finds he has sprayed too far ahead of the drop, a repeat application can be made. By holding off until dropping is under way, abscission may have advanced to a point where the hormone is not effective. With a little experience and careful study of his own situation, a grower should have little trouble in properly timing his spray.

Dr. M. B. Hoffman, working with McIntosh in western New York this past season, was successful in effectively controlling drop in all of six orchards where experimental work was conducted. Over 650 trees were sprayed in these orchards, with the drop ranging from 1 to 10 percent. Unsprayed trees varied from 15 to 60 percent. The effective period of the sprays in the different orchards was from 8 to 12 days.

It is difficult to obtain information as to the effect of temperature on hormone sprays. It is believed that under low temperature condition the duration of effect may be longer than with higher temperatures, but it may take 4 or 5 days for the spray to become effective, while with higher temperatures effect may be evidenced 24 to 48 hours after application. The net result may be the same, however, since normal drop is also slowed up by low temperatures.

Fortunately, with most varieties the duration of effect is much longer than with McIntosh and consequently timing is not exacting. With summer varieties, particularly Williams Early Red, results have been phenomenal. With this variety the spray is not only highly effective but of long duration. Sprays may be applied as much as two weeks or more in advance of harvest, with almost perfect protection from dropping during the harvest period.

With most fall and late fall varieties (Delicious, Rome Beauty, Stayman, Winesap, etc.) the period of effect has varied from 2 weeks to over a month. Such varieties may be sprayed 2 or 3 weeks prior to the usual picking date. One should not wait until dropping begins, as it may be too late for best results.

At Beltsville, Md., some experimental sprays were applied to York Imperial and Rome Beauty as late as October 15, the normal picking date

Table 2.—*Comparison of effectiveness of naphthalene acetic acid applied at different concentrations.*

Treatment No.	Nature of Treatment	No. trees per treatment.	Avg. accumulated percent drop of original crop										
			Days after first spray										
			5	7	9	12	14	16	19	21	26	28	29	30
1	.001 % Sept. 11	6	.9	.9	1.2	2.1	2.4	4.4	4.6	5.0	9.6	13.4	15.1	16.9
2	.0005 % Sept. 11	6	.9	1.5	1.6	2.5	3.3	5.6	5.9	6.9	15.5	20.2	21.4	24.0
3	.00025 % Sept. 11	6	1.5	1.9	2.1	2.9	4.1	7.4	8.8	11.6	22.4	30.3	32.8	36.4
4	Unsprayed	6	1.7	4.6	6.1	9.3	12.8	17.0	22.4	26.4	53.8	58.4	61.9	67.5
5	.0005 % application, light, Sept. 11	6	1.4	2.2	2.7	4.0	5.4	8.4	9.7	13.3	32.2	37.9	40.6	44.5

for these varieties. The sprays had very little effect in retarding a heavy drop which set in October 20 and continued until the fruit was harvested. A possible explanation for failure in this case would seem to be the very low physiological activity of the leaves and other tissue this late in the season. It is probable that had these trees been sprayed two weeks earlier good effect would have been obtained.

Effective Concentrations of Hormone Sprays

The directions for use accompanying all of the proprietary commercial preparations at the present time are calculated to give a spray solution with a .001 percent concentration of hormone. Quantities of ¼ (.00025 %) to ½ (.0005 %) this amount have proven effective in many instances but data have been lacking as to how long these weaker concentrations will remain effective. The data below are the result of an experiment on 12-year-old Delicious trees designed to give information on this phase of the problem.

Spray applications were administered as indicated in the above table. The normal harvest date for Delicious was about September 27, 16 days after spraying. The drop ratios for the different treatments at this time were 1.0-1.3-1.8-3.9 for treatments 1, 2, 3, and 4, respectively. When the fruit was harvested October 11, 30 days after spraying, the drop ratios were 1.0-1.4-2.1-4.0. In other words, for every bushel that dropped from the .001 percent treatment 1.4 bushels dropped from the .0005 percent treatment, 2.1 from the .00025 percent treatment, and 4 bushels from the unsprayed treatment. The relationship for the different treatments is so nearly the same for the two dates it would seem that the duration of effect was not greatly affected by concentration of hormone. The effectiveness for a given period increased, however, with increasing concentrations. It is dangerous to generalize from the results of one experiment with one particular variety. Whether or not the .001 concentration will give enough better results in effectiveness than .0005 percent to justify its use remains to be established.

Importance of Thorough Coverage

Thorough coverage is perhaps the most important single factor in the success of hormone sprays. In order for the spray solution to be effective it must contact the stem of the fruit. Every effort should be made to do a thorough job in the top of the tree since the best fruit is usually borne in this portion of the tree. Also, when an apple falls from the top it is likely to knock off several fruits on the way down. A tree should be sprayed both from the inside and outside. It is difficult, if not impossible, to adequately cover a heavily loaded tree from the outside only. The fact that the spray solution is dripping from the foliage is no criterion of thorough coverage; the fruit stem must be hit.

Adequate coverage is not difficult to obtain with long stem varieties, such as Williams Early Red, Rome Beauty, Delicious and Golden Delicious. With these varieties it is relatively easy to contact the stems with the spray solution, and the fruit hangs in such a manner that

during the process of spraying, the stem cavity becomes filled with the spray, which makes for ideal coverage. McIntosh and York Imperial are examples of short-stem varieties with the fruit usually clustering together in such a manner that it is difficult to reach the stem with the spray. With such varieties as these, only a very thorough and systematic job of spraying will be effective.

In the Delicious experiment described above, a treatment was included (table 2, experiment No. 5) in which the trees (12 years old) received a light spray application of 5 gallons per tree of .0005 percent concentration. This treatment is to be compared with treatment No. 2 which received the same concentration but more thoroughly applied, using 10 gallons per tree. In general, the light application proved to be just half as effective in retarding drop. These results serve to emphasize that the control of fruit drop can be no more effective than the coverage given.

Effect of Sprays on Tree and Fruit

There is no toxic or visible residue resulting from these hormone sprays. No injury to fruit, foliage, or the tree in any way has been observed. In the case of the fruit, the only effect appears to be that of delaying drop, thereby allowing for better color development and some improvement in size. It is quite possible, particularly with summer varieties, to allow the fruit to hang longer than is best for proper maturity. There seems to be no direct effect of the hormone spray on maturity. Many varieties, however, if allowed to hang too long after their normal picking date, are likely to become too mature for best keeping quality. This is, of course, true whether sprayed with hormones or not.

One should bear in mind that with the use of these sprays a certain amount of fruit remains on the tree that otherwise would drop. Naturally, these fruits are the most mature and if not harvested within a reasonable length of time may become mealy or develop water core. Therefore, with many varieties one cannot postpone harvest too long in order to attain better color. With McIntosh, high color may develop in a very few days under ideal conditions. Thus, by delaying harvest a few days in the case of this variety not only much better color is likely to develop but an actual improvement in maturity and keeping quality is usually obtained.

In many fruit sections it is likely that the harvest sprays will prove to have their greatest value in merely protecting the fruit grower from losses before and during the normal picking operation.

With this new orchard practice now under experimental test in many fruit sections of the country a number of improvements will doubtless be made and additional knowledge obtained. In its present form, however, this hormone spray, if properly timed and thoroughly applied, will successfully control the preharvest drop of apples. As mentioned above, a number of commercial products containing the active hormone ingredient (naphthalene acetic acid or naphthalene acetamide) are on the market at the present time and the cost is within practical consideration.

GROWERS' EXPERIENCES WITH HARVEST SPRAYS

E. D. McCain, Hill Crest Orchards

Frederick, Maryland

We used Fruitone throughout the season with varying degrees of success. We used this material at the rate of 2 lb. to a five hundred gallon tank and applied same amount to trees as in spraying for codling moth.

Starting with Duchess, we had only fair results, but had a shower soon after spraying. The spray had time to dry, but still had considerable drop.

Results were excellent with Williams, Wealthy and McIntosh. In fact, this was the first year we have ever been able to pick a high percentage of U.S. No. 1 McIntosh on account of color.

Results with Jonathan and Grimes were also fine. We learned, however, on Grimes that when the effective time of spray is run out the drop is exceptionally heavy. In picking Grimes, all but one block was finished on a Saturday, which we would pick on the following Monday. I was in this block on Sunday afternoon. There were some apples on the ground, but not serious. On Monday morning, when we went into this block to pick, we could hardly believe it possible to have so much drop over night with no wind or storm. Almost half the apples were on the ground. It had been almost three weeks from time they had been sprayed.

Our Delicious started to drop very early in the season without any color. I believe, though, that the spray did considerable good to the apples that would naturally have stayed on till anywhere near the regular picking time.

Our results on Stayman were most discouraging. We applied the spray when most of the trees were just beginning to show a little drop, but some of the trees here and there had considerable drop. We started picking right away on the best colored blocks. It takes us about three weeks to pick our crop of Stayman and ten days after the first spray we sprayed again the blocks that were not picked. The drop througout was very heavy—in fact, just as heavy as we have ever had.

It is my belief that with an apple as subject to drop as the Stayman they should be sprayed early before any drop has started and kept sprayed till nearly through harvesting.

Personally, I am convinced that this spray, when applied in the right way and at the right time, will be a wonderful help to the fruit grower.

R. S. Dillon, Jr., Forest Hill Orchards

Hancock, Md.

During the past season we used one or another of the harvest sprays in three of our orchards on fruit maturing in August, September and October.

In the first trial, the spray was used on a block of approximately 600 Wealthy trees. This block was sprayed according to the manufacturer's recommendations, but in test blocks the material was used at twice the recommended strength as well as at ½, ⅓, ⅔ and ¾ strength. A dozen trees were not sprayed at all.

Despite the large number of test plots, little difference could be found between those where the recommended quantity or less was used and those that were unsprayed. Only the plot where double strength was used showed less dropping during the same period. Because of cool, damp days the fruit did not take on color, even where it was left until it was very mature. Just before the third picking a severe wind storm blew off a large quantity of the apples that had not yet been harvested. The fruit on the one plot, where double quantity had been used, hung on slightly better than any of the others, but not to such a degree as to make the spray worthwhile. In our opinion, the harvest spray on this Wealthy block was of very little benefit, and it certainly did not pay for itself.

In September the harvest spray was used on a large block of young Delicious trees in another orchard. No such detailed plots were kept as in the first orchard, but here the spray was of much greater benefit. After the final picking, less than half as much fruit was on the ground under the sprayed trees as under the unsprayed. Here we feel that the spray was definitely worthwhile.

About the tenth of October we had a serious droppage of Yorks in a third orchard. Since no one was able to determine why they had dropped, we decided to spray two very fine blocks of Rome Beauty and Stayman Winesap in the same orchard. It was with the idea that they, too, might start to fall. Within 36 hours of our spraying the Stayman, we had started to pick them, and within 11 days after finishing the spray we had all of both the Romes and the Stayman harvested.

In the rush of a busy harvest season adequate test plots were not kept, but on a few unsprayed Rome trees there was an average of three bushels on the ground after the fruit had been picked. Under the sprayed trees there was an average of slightly more than half a bushel. While this fruit was not left to see how long the spray would keep it on, the fact that so few apples fell during the actual picking makes us feel that the spray here well paid for itself.

WILLIAM C. MAIN, Glaize Orchards

Hagerstown, Maryland

Harvest spray was very satisfactory on Williams. One block of Stayman that was sprayed picked 10,800 field crates, with 400 field crates of dropped fruit. Most of these apples fell after the October 19th snow. Harvest spray worked very well on Rome and Delicious, but was of little benefit on York.

DWIGHT WALKER
Mount Airy, Maryland

We used harvest spray on 10-year-old Jonathan and Grimes, and on 25-year-old trees of the same varieties. Three days after application, the fruit would not come free from the spur. This lasted for about 10 days, after which time we saw no difference between the sprayed and unsprayed fruit. The effect on Grimes lasted about a week, and they did not stick like Jonathan. The effect of the material was more pronounced on young, vigorous trees. We did not need any help on coloring, as the season was late, and the weather was right for color development.

ARE GROWERS IMPROVING THE PACKING OF FRUITS IN MARYLAND?

W. C. BEAVEN, Supervising Inspector
Maryland State Department of Markets, College Park, Maryland.

This subject has many angles. In the first place, what fruits shall we discuss? Strawberries? Peaches? Apples? Secondly, what period of time shall we consider? Shall we take the ten-year period from 1931 to date, or shall we talk only about the last two or three years? Thirdly, shall we consider packages, packing, handling or simply the quality of fruit in the containers?

You, of course, are particularly interested in apples—also peaches—but perhaps something should be said about strawberries.

The commercial pack of strawberries has shown a slow but steady improvement. This has been more in evidence the last two or three years, when most of our strawberries have been marketed in 24 quart crates, containing three layers of cups, instead of the old 32 quart size, which had four layers. When the old 32 quart crate was used, it was more or less the general practice to put stock of inferior quality in the cups in the bottom layer, because this fourth layer usually escaped inspection. With the advent of the smaller crate, containing only three layers, a decided improvement was noticed immediately, since the bottom layer in this type of crate is more readily accessible for examination. A great many of our strawberries, as many of you know, are sold through the auction block at Marion Station on the basis of the U. S. grades. Here, licensed inspectors mark the top of one crate on every load to indicate the general quality, condition and size of the stock. The berries then pass through the block and buyers make their bids largely on the basis of these markings. It might be well to say here that quite a large grower-owned and controlled auction block was organized last year at Princess Anne, and large quantities of berries were sold there.

The Maryland pack of peaches has also shown much improvement during the last 10 or 15 years, but most growers are still over-facing

and the tendency to size peaches too close to the line still persists. This size proposition has been causing our inspection service quite a little trouble in the terminal markets, and many cars of peaches, which were in grade as to size at shipping points, were out of grade when re-inspected at destinations, on account of excessive percentage of undersize stock. Peaches, especially when harvested after heavy rains, apparently dehydrate considerably, and this is thought to be another reason for more under-sized peaches being found in the terminal market than at shipping points. Naturally, more trouble is experienced along this line when a large amount of the orchard run stock is near the minimum size being packed. It is suggested that the sizing apparatus should be widened just a little to take care of this condition. No doubt, due to proper insect and disease control measures, we are raising much better peaches than formerly, and perhaps this is an important factor in the improvement in our pack. One other thing that should be mentioned in connection with peaches is the fact that, in many instances, hard peaches are packed in containers along with peaches that are almost ready for immediate consumption. Under pressure in the baskets these peaches cause much bruising and damage to the softer fruit. Whether or not it is economically sound to separate the softer peaches from the harder stock, I am not prepared to say—I am just stating what often happens.

Now, when it comes to apples, we have a different story. As I recall, I first came to Western Maryland in 1929, and if we consider, as a whole, the period from that year to the present, there certainly has been a great improvement in packages, the quality of the fruit packed and in handling methods. In the old days, any sort of cleaning apparatus was a rarity in this territory, while now cleaners are in pretty general use and many growers have washing devices. Some years ago, we used a very bad type of round bottom baskets with flat tops, cardboard liners, and maybe some sort of paper caps. Now our baskets are generally much more sturdy, have curved tops, and paper cushions are largely used under the lids. Growers began to go to the trouble to "dress up" their pack by means of colored hoops on the baskets, scalloped or fringed collars and, in many instances, a dash of oiled paper over the face. It is my personal opinion that the Eastern type apple box recently introduced into this territory is a decided improvement over the basket, and certainly a step in the right direction, if we are to keep bruising at a minimum. However, the tendency to crowd 10, 15 or 20% more apples into the box than it was originally designed to hold has, in many cases, offset the benefits which might be derived from this more solid type of package. If the trade, somehow, could just be taught to expect, and be satisfied with, only a bushel of apples when they buy a bushel, and if this Eastern box is properly packed, we should get rid of many of the complaints about our fruit arriving in the markets excessively bruised.

But, if we apply the subject of this talk to the years from 1939 and

1940, we get another picture. For the few years immediately preceding 1939, most growers strived for a pack containing not more than 3, 4, or possibly 5 percent grade defects. During those years, the apple crop was packed for competitive sale through the ordinary channels of trade. Good quality packages were used, as well as paper cushions and, in many cases, oiled paper and scalloped collars. For the past two years, however, in a great many cases, apples containing 8, 9, and even 10 percent grade defects were packed, and the cheapest container possible was used with no oiled paper and only corrugated caps under covers. What is the reason for all this? Perhaps we had better refresh our memories.

When I first came to Hancock, we were exporting all manner of "unclassified apples" or, in other words, culls. These apples must certainly have been a sorry mess when they reached Europe or whatever other point they may have been destined. At this time, we were perhaps beginning to "kill the goose that laid the golden egg." European markets complained bitterly about the quality and condition of apples received from America, and certain of these countries began to consider methods by which such fruit could be excluded. American growers soon realized that something must be done to remedy the situation, if they were to continue to enjoy an export outlet for part of their fruit. In 1930 spray residue tolerances for lead and arsenic were set up by the Federal Government, and no apples were allowed to be exported to Great Britain and the continental countries which contained residue over a prescribed limit, which happened to be, at that time, .018 grams of lead and .01 grams of arsenic per pound of apples. "Export Form Inspection Certificates" were required before shipment to show compliance. In 1931, Argentine issued a decree relating to barrelled apples shipped to that country which stated, among other things, that each apple must be wrapped separately in oiled wraps, on which must be printed the name and address of the shipper, and that such apples must be subjected to two separate inspections in this country to see that their regulations were enforced. In the same year, France set up regulations concerning the importation of apples which set forth that they must be "scale free." These two regulations had the effect of barring a large amount of our apples from these countries. Convinced that something further had to be done, if our growers were to keep any part of their export trade, the United States Export Apple and Pear Act was passed, which took effect August 31, 1933. This act, in brief, gave the Secretary of Agriculture power to set up rules and regulations covering the quality of apples and pears that could be exported from the United States. It was a voluntary restriction which the apple and pear growers in this country put on themselves, in an effort to see that only good apples reached the foreign markets. The original regulations under the export apple and pear act set forth that no apples of a lower quality than U. S. Utility could be exported, and that each shipment be accompanied by an official certificate stating that the

requirements of the Export Apple and Pear Act had been met. Along about 1934 and 1935, the apple growers were confronted with still another difficult problem, and its name was Hitler. Previous to these years, large quantities of our apples were consumed in Germany, but under the Hitler economic system, which is a kind of barter or exchange of goods rather than paying cash, this outlet for apples was practically closed. In 1936, our Export Apple and Pear Act was "tightened up" in order that the quality of apples moving to foreign countries be still further improved, yet still fewer and fewer apples were exported.

Now, let's review another factor in the apple situation. In February 1936, the Federal Government inaugurated its first apple purchasing program in Maryland, buying some 22,000 bushels of the 1935 crop out of storage. In the Fall of 1937, representative apple growers met with Government officials in Washington to work out a plan for further government aid and about 50,000 bushels were bought during the harvesting season in that year. In 1938, 34,200 bushels of the 1937 apple crop (stored in Maryland) were purchased by the Federal Surplus Commodities Corporation for distribution to persons on relief. During the harvesting season of 1938, growers were able to market their apples at a fairly satisfactory price. In 1939, however, conditions again became critical, and 160,880 bushels of Maryland apples were purchased by the Government. In 1940, things were still worse, and the Surplus Marketing Administration purchased 46,470 bushels of the 1939 crop out of storage and 247,564 bushels of the 1940 crop during the harvesting season.

So, from 1929 to 1938, we were gradually losing our foreign markets for apples, despite efforts to send better fruit overseas. By 1939, these markets were all practically closed to us; there was very little domestic demand, and competitive selling, on the basis of quality, greatly declined. And, early in 1936, the Federal Government began buying "surplus" apples for distribution to persons on relief in ever increasing quantities. These apples, of course, were purchased on the basis of the U. S. grades and growers soon learned that, under the Government's purchasing programs, they could get just as much for their apples if their packs contained 8, 9, or 10% grade defects, and if low quality containers were used, as they could if they put up a "bang up" pack and used good quality containers and trimmings. As a matter of fact, I believe you will agree that it is pretty hard to get your graders to put up an "excellent" pack of apples after they have been putting up a pack just good enough to meet grade requirements, and vice versa. Putting it another way, it is hard to pack one kind of "U. S. No. 1" for the trade, and another kind of "U. S. No. 1" for sale to the Government, and our growers certainly have not been improving their pack of apples during the last couple of years.

What are we going to do about it? Well, we can (1) put up the best pack possible with the hope of obtaining a premium, or (2) we can wait until we are guaranteed a premium for a quality pack. Which plan is

the more economically sound need not be discussed here, but it should be remembered that, even with conditions as existed last year, some growers did sell a considerable amount of their apples commercially, and these growers probably received prices at least equal to that which the Government was paying, since the Surplus Marketing Administration bought nearly all offerings. So, perhaps, uniform quality packs do pay, after all.

HOW ADVERTISING HELPS TO MOVE FRUITS

JOHN LYMAN, Fruit Grower, Vice-President, National Apple Institute,
Middlefield, Connecticut.

I want to bring you greetings from the Connecticut Pomological Society and the fruit growers of Connecticut. Like yourselves, we are small toads in the large national pool of apple growing. None-the-less, we are just conceited enough to think that in swimming around in this pool we quite often approach the top rather than staying at the bottom. Thus, we feel that we have something to "talk about". One of the biggest reasons why we are enthusiastic about our apples is that we are enthusiastic about all apples—apples as the King of Fruits. My subject is "How Advertising Helps to Move Fruits". May I add to the word advertising, the word "publicity", which I think most people consider go very much together. And what is advertising? What is publicity? "Talking about" something. And so we "talk about" our apples.

It seems that when you do something wrong or unconventional, your neighbors at once give you more publicity than you would like, all free of charge. But when you do something very worthwhile, your neighbors take it for granted and forget it at once. So with a good product. There is very little advertising or publicity free of charge. You must organize, pay one or more persons to continually harp on your product, tell of its good points, feature it by tongue, pen and brush. Pay for actual space in magazines, etc., pay for posters, displays, and recipe folders, pay for services which indirectly obtain publicity in a thousand ways. Isn't it strange that we have to put so much effort behind a product like the apple which for so many years has been the center of the fruit stage and has been an accepted health producing part of the human diet? It even seems strange that a company should still have to advertise Ford automobiles after their wide acceptance during the past 35 years, but Henry Ford will attest to the value of continuous advertising.

I presume we have to do this because of man-made competition with other articles of food. If no other producers or manufacturers of food products "talked about" their products, unquestionably apples would share equally well with, or even better than, most articles in the human diet. We learn from statistics that the per capita consumption of apples has dropped from 90 lbs. in 1910 to about 25 lbs. in 1935. The amounts in pounds may be incorrect, but it points out very clearly what has happened to apple consumption in the past 30 years. So many other fresh

fruits and vegetables were introduced during that period from all over the world that apples no longer enjoy the number one ranking place on the fruit stands of our nation. They had been shoved underneath the fruit stands or left in the back room for those who might perchance ask for them. And the number who asked for them was decreasing rapidly. They were buying those fruits that were displayed and "talked about".

And so we began to "talk about" apples. Following the organization of the National Apple Institute, regional Institutes were formed in the natural growing and marketing areas. New York and New England growers joined forces as did your four states in the Appalachian area. New Jersey Fruits, Ohio, Illinois, Michigan, Missouri, and Kansas Institutes, Washington State Apples, Pacific Northwest Fruits, all were formed because the growers recognized the need of organization to get Mr. and Mrs. Consumer "talking about" and using our apples. If apples were not to become an extinct fruit, the growers realized they must get out and help themselves. They realized that they must bring back into public favor the King of Fruits which they and they alone had been taking for granted. With apples grown commercially in some 33 states in the Union, the time has not yet arrived when we can get together to grow and pack under a central organization and employ salesmen to go out and sell a particular brand. We have found it of great value to employ one or more salesmen, (we call them Institute Managers and assistants), to go out and contact any and all people who in any way come in contact with our apples. That means, distributors, commission men, buyers for large and small chains, buyers for groups of independent stores, independent storekeepers themselves, home economics teachers, consumer groups and so on down thru the long list of opportunities. And to do what? To sell all these people an idea. An idea that we are taking for granted, but which they were not. Again, to "talk about" our apples.

It is interesting to notice what can be accomplished by concerted action. In the New York and New England area the reaction has been twofold. Not only have those handling our apples and the consumers become apple-conscious, but the growers themselves have cast off that defeatist attitude and, so to speak, have become apple-conscious themselves. They are talking apples now instead of oranges, the fruit of their competitors. They are ceasing to consider it a competition between apples from the various growing sections. They are thinking along the line of doing the best job possible for their own apples in their own territory so that their apples or someone else's apples will enjoy a strong consumer demand.

We all realize that we have been looking over the fence at our neighbor's pasture, forgetting that our pasture has some mighty good green grass in it, and that possibly some of the green in the neighbor's pasture may be weeds. In the State of Maine, growers had been in the habit of shipping most of their apples to Boston, either for domestic consumption

or for export. They passed up cities in their own state that were as large or larger than many cities around Boston where their apples ultimately went. Recently, by concerted action and "talking about" Maine apples for Maine people, they have started a movement which may eventually consume all Maine apples in the State of Maine. They can be selfish in reaping the greater returns by cutting their marketing costs, but in turn they can be unselfish to those growers whose market is naturally Boston and the surrounding towns.

Speaking of Boston and surrounding towns, we forgot for a while that there is a very potential market for our apples in all small towns regardless of the size. The back-yard orchards have disappeared. The folks in the small towns have been accustomed to apples and they like them. We must see that they get apples and continue to get them. In my little town of Middlefield of about one thousand people we are all pretty much apple-conscious. Apples have been grown there for 125 years. We ourselves have a cold storage plant so that apples are available up until April 1st at least, and often until June 1st. But in the seasons when we close down about April 1st, I notice that the little country store that sells everything from crowbars to aspirin tablets will get in once or twice a week, a bushel of apples from some other growing section, generally Virginia or the Northwest. The folks out in the country want apples until hot weather. And we must see that they get them and not let them substitute some other fruits.

Since 1935, when we started the New York and New England Apple Institute and began to "talk about" our apples in an organized way, we have noticed an increased interest on the part of storekeepers and peddlers in apples. As Frank Beneway, our Vice-President, from Ontario, N. Y., remarked at one of our meetings—"if we have accomplished nothing else, we have brought the apple from underneath the counter or from the back room to a prominent place on the stand". We have seen just that during our special Apple Drives that have been put on in conjunction with the National Association of Food Chains, the National Association of Independent Grocers, and all fruit and produce retailers during the past few years. Storekeepers have found it can be made a profitable procedure to put apples where the consumer can see them. Dieticians and food experts find it popular to "talk apples", to offer recipes using apples not only at times of apple drives but at all times. During the past year especially, many concerns wishing to promote their product by using related items in their advertising, have used apples a great deal. I honestly believe that most of it is due to the fact that we have been "talking apples", making apples popular.

An interesting incident occurred last Fall in my locality. In celebrating the 50th Anniversary of our Connecticut Pomological Society in November, we decided to put on in conjunction with the New York and New England Apple Institute a publicity program for eight weeks prior to our meetings. Soon after we started to get out advance publicity, a free-lance newspaper writer from Waterbury came to me in quite a

dither—she wanted to know what all this How-do about apples was. She understood Connecticut had the largest crop of apples in history and the growers were in distress. She wanted a story. She was much surprised to learn that Connecticut's crop of apples was only 75% of last year, below the five-year average, that the market seemed strong and the growers were very much encouraged. "Then why all this stir about apples?" I explained our program for the past five years and that this was just another opportunity that we had capitalized on to "talk about" our apples. I gave her the story of our Society, of our Institute, our complete faith in our industry. Her photographer took pictures of me looking like a tramp, of my men picking apples, more men stacking them in our storage, etc. The following week the Waterbury Republican came out with a Sunday feature article on the apple industry in Connecticut covering a full page and carrying four pictures. No apple industry in distress but rather an industry going places. The following day, Monday, a dozen or more friends commented on the apple story of the day before. Five years ago we had a hot time getting anyone to listen to us when we started to talk apples. We had to agree to buy space in the paper in order to get a story.

I for one am glad that the apple growers of the nation have awakened to the need for advertising their product. Marketing conditions are changing rapidly, more rapidly than we realize. We used to live and think county-wise, then state-wise, then area-wise, then nation-wise. But with fresh fruits and vegetables in our markets from all over the world every day in the year we must think world-wise. We must get on our toes and fight for whatever market we are going to have for our apples. We are going to have to convince consumers that our apples are good for them—better than anything else they can eat. Biblical Eve may have felt that she just had to have her apple, but the modern Eve does not feel that way at all. It is our job to convince her, or our industry will fail.

With all this advertising and promotional work for apples, we growers are apt to feel that is the whole answer. We are apt to rely on the efforts of the Institutes, at 1c a bushel, to do the whole job of selling our apples. Does Ford advertise and then wait for the customers to flock to his salesrooms for his cars? He does not. He has his men go right out and get the customers. So, marketing our apples, even after the demand has been created, is a big task. And, by and large, a grower is not a good marketer. He is too easily prejudiced. In years of big crops, he decides to dump and let her go. In years of shorter crops, he decides to padlock his storage doors. He puts the price right on the lock, "Two bucks or we don't unlock those doors." If there are no offers the padlock stays on. About January he shakes himself from his self-induced coma and decides that perhaps his price is a little too high. When he learns that, in spite of the shorter total crop of apples, there are more apples in cold storage on December 1st than a year ago and more than the five-year average, then he starts to cut and run. When he does,

he finds that he has to sell so far below his original two bucks. Then he gets sore and blames the peddlers, the commission man, the chains, the Institute, in fact, everyone but himself. If we are going to "talk about" apples, make them popular, we must make them available. We must have them on the market at all times. We must work to get the market up. We must appear optimistic, but continue to sell.

The day has passed when a shortage in an apple crop means a "killing". In 1921 there was a short crop of apples. Citrus production was not as great as at present. Transportation of fresh fruits from far-off lands under refrigeration was not as common as today. Production of fresh vegetables in all sections of our land was not so great. There was a "killing" in apples. Cider apples at $5 per barrel. That was an exceptional year and there was no marketing problem. But compare that with 1926, when apples brought next to nothing. And what a punk job of merchandising we were doing. We deserved a beating. We took whatever any peddler or buyer had to offer. We did no advertising or promotional work to help ourselves. Blamed the buyers and consumer for leaving us holding the bag. And in those days we had an export market. We took it for granted. We sent our apples all over the world to compete with apples or other fresh fruits of those other countries.

Now we are face to face with competition not only of all the fruits from all over the world, but with APPLES from our neighbors on the north and perhaps from the South American countries. Had we been "talking about" our apples in a big way as long, for instance, as Sunkist has been "talking about" her citrus fruits, we would be in a better position to meet this competition on better terms. If the consumer had continued to eat nearly as many apples as he or she did 25 years ago instead of falling for the appeal of so many other fruits, we could absorb this overload of apples brought about by these abnormal conditions. Had not California citrus growers so firmly established in the minds of the consumers the name Sunkist and how much real health it represented, the orange growers just never could have survived the past few years of increased production.

But we have made a start and an honest one. We must remember that Sunkist started with $7,000 the first year, one-half from the growers and one-half from the Southern Pacific Railroad. From a tiny acorn grows the mighty oak. And the tiny acorn which the apple growers have planted has sprouted and a sapling is developing. Growers in all sections must supply this sapling with the proper nourishment and in sufficient amounts to have it develop into the mighty oak. Hundreds of instances are before our eyes every day where advertising pays. We growers must shake ourselves into the realization that we must "talk about" our apples until Mrs. Consumer demands them. Then, we must market them in such a manner that will give Mrs. Consumer our apples as she wants them, when she wants them and where she wants them.

REACHING THE CONSUMER WITH IMPROVED FRUIT PACKAGES

TRUMAN NOLD, Secretary, National Apple Institute, Columbus, Ohio.

Our apples would be better packaged and would go to market in better shape if we ourselves had to buy our regular family supply of apples from the grocery store as other consumers do. But apples are one item we never need to order from the grocer, so we seldom have occasion to see how our fruit looks to other consumers. If we did, we would probably be shocked into making some improvements. We would discover that an appalling percentage of our good apples never reach the consumer in anything like decent condition. We would realize how costly that loss is to us, as growers, for after all, it is the consumer, and not the grower, who finally sets the price on apples.

The sensible housewife never pays more for a pound of apples or anything else, than she thinks it is worth. She will not even take home a can of soup or beans if the can is dented and the label scratched and torn. When the apples she is offered are damaged or bruised, the price she is willing to pay goes down, and sometimes her willingness to buy is transferred to some other fruit in better condition. The man who takes that loss is the man who grew the apples, not the retailer; not the wholesaler. They made allowance for that when they bought.

Of all the things that can happen to damage a good apple after it leaves the tree, probably the biggest share of the hazards can be classed under packaging. Every apple grower is working under pressure at packing time; pressure to beat the weather, to keep the labor force moving, to keep the packing shed clear, to get the fruit under cover in the least possible time and at the least possible expense. If he is lucky, the buyers are on the phone, and the chances are that some of them are insisting on a heavy pack. "Hump 'em up," they say.

There is not a man present who is not somewhat proud of his own pack of fruit. Yet, before you assume that this packaging problem may apply to your neighbor and not to you, try, if possible, to see how your fruit looks as it is brought out for sale in the retail store. Take a trip to some of the stores and check up just to make sure. Maybe you are due for a surprise.

It is not easy then to think about the housewife who will be standing in the grocery store in December or February, looking with a disapproving eye at the apples which may be bruised and decaying from rough handling and over-crowding in the package. But the apple industry has been waking up and giving serious thought to the problem. Nothing shows this more clearly than the recent trend toward increased use of boxes in the East and Middle West. I can say from observation in the markets, that as a general rule the apples packed in boxes show up in better condition in the stores. Undoubtedly that is largely a result of the protection afforded by the box itself with its solid sides to keep the pressure and weight off the fruit, as contrasted with the flexibility of the basket.

But that is not the whole story. Part of the credit should be given to the grower and his packing crew, who go into their new pack with a fresh viewpoint and who, therefore, put more care and pride into it. There is nothing except old habits to prevent going after our basket packs with the same fresh viewpoint. A few growers here and there have done so and the results have been good. Neither the box, nor any other new package, is a cure-all for the old evils of carelessness, lack of respect for the fruit, and the tendency to give in to buyers who want a peck of apples given away with every bushel they buy. I am glad to report that your Applachian belt is gaining a reputation in outside markets for progress away from those old evils.

The interest in consumer packages for apples is growing all the time. I wish I could tell you that the perfect consumer package has been invented and placed on the market, but I cannot. This is not to say that there are no good packages or none that can be used profitably, for there are. But each package has its special limitations and requirements which must be taken into account. The many types range all the way from cellophane bags to intricate assemblies of cardboard trays inside of cartons. In quantities used, the small mesh bags lead the field. Where these packs are delivered to retailers in good condition and then handled with care, the sales results are nearly always gratifying. But bear in mind, that all consumer packages make special demands on the grower, beginning with the fact that they must be fresh-packed. It would be a mistake for me to minimize the difficulties you are going to run into in case you are interested in consumer packaging. My thought is to urge you not to become discouraged when you run into the first headaches and disappointments. Look into this package question with an experimental viewpoint and you will be doing your neighbors a favor, as well as yourself. For, every new self-service grocery store that opens is an additional reason for seeking a way to sell apples in consumer units. The answer will not be found in the package alone, but will depend as well on gearing the package-shed operations around it, also on the storage facilities, and on the methods of handling out in the market.

THE APPLE TREE REMOVAL PROGRAM FOR 1941

PAUL E. NYSTROM, County Agent Leader, Extension Service,
University of Maryland, College Park, Maryland.

The apple industry is challenged as a successful commercial enterprise.

It is challenged by a combination of circumstances which must be faced courageously and combatted vigorously if apple growers are to maintain their investment and stay in business. The first challenge to the apple grower is the change in habits of American people. This has resulted in a decrease in consumption of apples. This must be overcome! Thirty or forty years ago the standard American diet, and

you and I can remember this diet, was bread and meat and potatoes and gravy. At that time, every family kept on hand a barrel of apples or a basket of apples and we boys could help ourselves to an apple whenever we wanted one. Thirty or forty years later what had happened to that diet? Bread, potatoes and some kinds of meat have been replaced by salads, vegetables, canned fruit and oranges. Per capita consumption of bread decreased 30%. Per capita consumption of potatoes also decreased 30%. Per capita consumption of meat—no change. Per capita consumption of sugar increased 72%. Per capita consumption of apples *decreased* 36%. Per capita consumption of oranges *increased* 190%. There is the first big challenge to the apple industry. Apple consumption per capita decreased 36%! Orange consumption increased 190%! Real money has been spent by California and Florida to advertise their product, oranges. Real money must be spent to advertise your product, apples, if you are going to stay in business. When you are asked to support a vigorous consumer educational program—advertising campaign, remember: Apple consumption down 36%. Orange consumption up 190%.

"An apple a day keeps the doctor away." That is an old American expression, so common as to be trite. Every person in America understands that statement. And yet—do you know where you apple growers would be if every man, woman and child in the United States ate "an apple a day to keep the doctor away"? It would mean a consumption of forty-eight billion apples a year! As many apples as there are dollars in the National debt! The annual American apple crop of 150,000,000 bushels would have to be increased to 480,000,000 bushels—more than three times to satisfy the demand for apples. Instead, we have a surplus of apples! You remember too well the efforts made in the past few years to dispose of the surplus of apples.

This year, 1940, the Surplus Marketing Administration bought 294,000 bushels of apples in Maryland for $215,000. The purchases of surplus apples in Maryland by the Federal government represented 12 per cent of the Maryland crop in a year, 1940, when production in the eastern United States was 30 per cent less than that of the previous year. Can the Federal government and will the Federal government continue to purchase surplus apples year after year? How much longer will that program be continued, when every effort of the government seems likely to be concentrated on spending for National Defense?

Part of the story of surplus apples can be told in the story of export apples. For many years approximately 15 per cent of our United States apple crop has been exported, mainly to Britain and continental Europe. They won't be eating apples over there this year! What are we going to do with our surplus? Part of the surplus is found in many varieties of apples planted years ago when we thought we had to have certain apples for every conceivable purpose. In one of the issues of *The Maryland Fruit Grower*, Mr. Vierheller mentioned that there were more than 90 varieties of apples finding their way to market. Not nine but ninety!

Do you men have any of those varieties in your orchards, uneconomic and unprofitable?

For a number of years, the apple industry has been interested in a subsidized program to remove uneconomic and unprofitable apple trees. The government has had a program since 1936, known as the ACP Program, in which it made payments for such practices, as planting legumes, applying lime and planting forest trees. Fruit growers wanted another very important practice added, important to them, payment for removal of old, uneconomic, unprofitable apple trees that contributed to the surplus, that did nobody any good. Through the efforts of a "Tree Removal Committee" of the National Apple Planning Committee, officials of the Agricultural Adjustment Administration included in the 1941 AAA program, the Tree Removal Program that was proposed and advocated by the apple industry.

I quote as follows from the Maryland AAA program bulletin: "Removal of disease-infested or unecomonic apple trees, the major portion of whose fruit is of inferior quality:

(a) For trees five to twelve inches in diameter, thirty cents per tree (one-fifth unit).

(b) For trees more than twelve inches in diameter, fifty cents per tree (one-third unit).

"Prior approval of the county committee must be obtained before performing this practice. Payment will be made only for the removal of live, permanent apple trees and not for the removal of filler or semi-permanent trees. Land so cleared must not be used for the growing of soil-depleting crops during the program year for which payment is made. No payment will be made for removal of trees less than five inches in diameter. Measurements of trunk diameter will be made approximately one foot above ground level. Payment for this practice will be available in any county upon approval of the county committee. Not more than $15.00 per acre may be earned under this practice."

Apple growers should take advantage of this program. It is their own program, advocated by them, and it will contribute to the removal of surplus apples from the market. This is the greatest benefit to be derived, the improvement in market conditions resulting from removal of inferior trees and the crop therefrom. Apple growers should make application to the County Agent or the county committee, who will determine the number of units of credit that can be earned by the farm and the amount of payment that can be obtained for the tree removal program and the number of trees that can be paid for. A man will then be sent with the grower to his orchard. He will inspect the trees that are to be removed and make a report to the county office, which should show the average size of the trees, the number of trees that will be removed and the acreage on which they are to be removed. These data will be filed in the county office so the local supervisors

next summer will be in a position to check (a) whether the trees were removed and (b) the crop, if any, that has been put on this particular acreage.

Let me emphasize again that only old growing trees of inferior quality will be paid for, not young trees, dead trees or filler trees. That prior approval of the county committee must be obtained. That credit will be included in the units to be earned in the A C Program. That the land must not be used for a soil-depleting crop. That thirty to fifty cents per tree can be earned with a maximum of $15.00 per acre. That the total payment is dependent on the units of soil-building credits for the farm. That the trees do not need to be pulled out, merely sawed off and the brush removed and burned. That apples only, are included in the program.

The removal of surplus apple trees will be a great blessing to your industry that is cursed with a surplus. This will be a permanent removal and good insurance against indefinite loss of exports and good insurance against a possible tapering off of Federal surplus buying of apples.

Gentlemen, your industry is cursed and challenged by a chronic surplus. Part of the story of this surplus is told by the fact that whereas orange consumption (per capita) has increased 190%, apple consumption (per capita) has decreased 36%. Like the orange grower, you must advertise your product and induce the American public to really "eat an apple a day to keep the doctor away." Part of the story of the surplus is found in the very uncertain export situation. Mr. Hitler has deprived you of your market for apples in Britain and Europe and you can't do much about that. But you can do something about the rest of the story of the surplus, the story that is told by the old, senile, diseased, uneconomic apple trees in your orchard. Get rid of them in the Tree Removal Program!

NEW METHODS OF CODLING MOTH CONTROL

C. GRAHAM, Extension Entomologist,
College Park, Maryland

Before discussing the new methods for codling moth control, let us digress for a moment and discuss the reason for the constant search for new and more efficient materials and methods to control codling moth.

If we go back forty years, we find that the spray schedules called for one lead spray, which was recommended for the petal fall application. In many instances, this application was applied with a barrel spray machine with a pressure varying from 75 to 150 pounds. We are told that good control was obtained. Today in many instances we are failing to control codling moth with 600 or 800 pounds pressure. What has happened to bring about this change in codling moth control? The explanation may be found in the concentration of the fruit industry.

In the heavily planted areas there are always orchards in which the codling moth is not controlled, and these orchards serve as a reservoir for infesting other orchards. Large, closely planted trees, concentration of packing sheds, all have a bearing on codling moth populations. Any one, or a combination, of these circumstances that tend to increase the population of moths in an orchard contributes directly to the difficulty in controlling the moth, since moth control varies directly with the number of moths present.

Another factor that may have a bearing on the increased difficulty in the control of codling moth is the possibility of evolution of a more vigorous strain. There are experimental data indicating that this is true. It appears that the idea of a more vigorous strain has merit, since in many species of plants and animals scientists have found certain specimens that would survive under conditions that were fatal to others.

In many instances the resistant characters observed in these individuals are transmitted to some of the offspring. In this manner, resistant strains have evolved. In codling moth, however, the question of such evolution is problematical.

Regardless of the factors affecting codling moth control, the problem has become more and more difficult, and during the past several years federal, state and private organizations have devoted time and money to develop more effective materials for the control of this pest.

Some of the more recent developments are inverted oil emulsions and lead mixtures; combinations of lead arsenate and oil; lead arsenate and nicotine; lead arsenate, oil, and nicotine; lead arsenate and pyrethrum extract; phenothiazine: xanthone; and tank-mixed nicotine bentonite.

The inverted oil emulsion and lead mixtures are designed to build up heavy deposits of lead in the early cover sprays, since the heavier the tree is sprayed the heavier the lead deposit. This method is based on the fact that when inverted oil emulsion or other spreader is added to the lead-water mixture a film of oil is formed around each particle of lead, and when this is sprayed on the tree the oil clings to the surface of the leaves and fruit, holding the lead and allowing the free water to run off. These inverted oil emulsion lead mixtures are used in the first or second cover sprays, the ultimate purpose of which is to deal a death blow to the first brood of moths, thus eliminating the necessity for the second brood applications.

Dr. H. N. Worthley of Pennsylvania has demonstrated that, by the use of these inverted oil emulsion and lead spray materials in the second cover spray, using twice the usual lead concentration and double the dosage per tree, control of first-brood moths was obtained equal to that obtained by four or five of the regular lead sprays ending sometime in July, and this is accomplished at a 25 percent saving in time and material.

In the lead arsenate-nicotine sprays, the purpose of the nicotine is to kill the adult moth and act as an ovicide by coming directly in

contact with the moths and eggs. The purpose of nicotine and oil in the lead sprays is two-fold: the nicotine being directed primarily against the adult moth and the egg, whereas the oil acts as a spreader and is also an ovicide. This combination is designed to reduce a heavy first-brood population of moths, and, when used for that purpose, should be applied in the 2nd, or 2nd and 3rd cover sprays.

The pyrethrum extract in the lead arsenate combination acts as a contact spray, and is used for the same purpose as nicotine. Phenothiazine and xanthone have shown promise as substitutes for lead arsenate and may find a place in the codling moth control program. The tank-mixed nicotine-bentonite spray consists of adding 1 pint of nicotine sulfate to 100 gallons of water as the tank fills, and into this sifting 5 pounds of bentonite, and finally adding 1 quart of soybean oil. This spray combination timed against second-brood worms has proved effective and helps to get away from the lead and arsenate residue problem. However, an undesirable residue is encountered by the use of this material.

Other supplementary methods have been developed which aid in controlling the codling moth. Scraping the loose bark from trees and placing chemically-treated bands around them has become quite popular and their value has been demonstrated repeatedly. Growers are becoming better educated to the use of codling moth cages and bait pails in timing their sprays. During the past few years, the development of spray machinery has been phenomenal. With all these developments in spray materials, supplementary control, timing of sprays, and the modern spray equipment, we fail to control the codling moth.

I have been observing codling moth control methods in Maryland for the past twelve years, and am convinced that regardless of the factors that have favored codling moth persistence, codling moth can be controlled with the regular lead arsenate sprays.

Heavy populations of moth build up in orchards as a result of poor spraying, and after such populations occur, some of the previously discussed materials will contribute toward reducing the infestation. Ninety-nine percent of the orchardists in Maryland fail to do a complete job of spraying. If the reverse were true, all this talk about new materials would fall on deaf ears, for there would be no use for such materials. Practically every talk that I have ever heard on the codling moth stressed the necessity of timeliness, use of correct materials, and thoroughness. It is evident that orchardists have never taken time to analyze the word, *thoroughness,* or else they are positive there is not an inkling of truth in the advice. Thoroughness means to be painstakingly exact or careful about details. How many growers stop their spray machines at every tree and have the men handling the nozzle get under the tree and spray from every angle until the undersides of every leaf and apple are covered? How many growers keep in close enough touch with the spray operators to know what they are doing and how they are doing it? Ninety-nine percent of the orchardists fail

to do a thorough job of spraying, and by so doing are constantly in the market for some high-priced ammunition that will, to a certain extent, help to compensate for the failure to do the job right.

To reduce a heavy codling moth population is an expensive and trying operation. The economical way to produce clean fruit is found in thoroughness of application. The year 1939 was most favorable for codling moth development and this combined with poor spraying resulted in serious injury from worms. One orchard had less than 15 percent of the tree-run fruit at harvest time free from worms and stings. This orchard was selected as a suitable place to inaugurate a clean-up campaign. Accordingly, in the fall of 1939 a cooperative project was started between the grower and the Department of Entomology. During the winter months the grower pruned the trees heavily, taking off all bottom limbs that would prevent the spray man from getting beneath the tree, also the entire tree was opened enough to permit a thorough job of spraying. The trees were scraped and chemically-treated bands placed around them at the proper time.

When the spray season started, the grower realized that nothing less than a 100 per cent coverage would start him back on the road of producing clean apples. Seven lead sprays were applied to the entire orchard and some plots received additional materials. The materials used and the results obtained are shown in Table 1. The survey figures for 1939 are also shown.

Table 1.

Year	Plot No.	Variety	Treatment	% Worms	% Stings	% Worms Stings	% Clean Fruit
1939		All	Regular schedule old method	40.0	46.0	86.0	14.0
1940		Rome	Black-Leaf-40 in 1st and 2nd covers	9.5	22.0	31.4	68.5
	I	Stayman	Black-Leaf-40 in 1st and 2nd covers	37.8	11.7	49.5	50.5
	II	Stayman	Oil and Nicotine in 2nd and 3rd covers	5.8	22.7	28.5	71.5
	III	Stayman	Oil in 2nd and 3rd covers	7.8	35.4	43.2	56.8
	IV	Nero	Black-Leaf-40 in 2nd and 3rd covers	3.6	16.5	19.65	80.35
	V	Nero	Regular spray schedule	12.5	28.4	40.9	59.1
	Averages			12.83	22.87	35.41	64.29

The 1939 figures represent only the fruit that was picked from the tree at harvest time. An examination of all drops would have greatly increased the percent of worms.

The 1940 records were obtained by selecting two large trees from each plot early in the season and examining all drops and tree run fruit. The purpose in presenting the above data is to illustrate what can be done in reducing a heavy moth population in one season with thorough spraying. In another orchard, with the circumstances similar to the above, the grower changed his methods of spraying by placing the emphasis on covering the undersides and tops of the trees. This was carried out on all the orchard except on a small block of young Jonathan and Delicious trees. The grower felt that since the trees in this block were small he could get good coverage by spraying from the outside only. A survey of the fruit in this block at harvest time showed that 53.7 per cent was wormy; whereas the average for the remainder of the orchard was 3.33 per cent. It will not be necessary to stress further to this grower the necessity for spraying the undersides and tops of trees as well as the outsides.

It takes more material and time to spray a tree thoroughly than it does to do a half job. No grower would go into the orchard and spray only every other row and expect to get control of worms; yet, in effect, you do that every time you cover the top sides of the fruit and foliage and leave the undersides as free pasture for the worms.

The final and only point I would like to get across is that the grower is the loser in cases of heavy worm injury, and that the grower is the one who must decide whether or not he is going to have wormy fruit. The grower can produce clean fruit with the regular lead arsenate schedule recommended if he is as thorough with his spraying operations as he expects his wife to be in preparing his meals. The newly developed materials are only necessary to reduce a heavy moth population, and a heavy moth population is the direct result of poor spraying. The successful orchardists in the future are going to produce clean fruit the economical way. The economical way is to remain at every tree each time it is sprayed until the inside, outside, underside, and top side of every leaf and fruit are covered. You are the man at the helm. You have a safe route charted. Will you follow the chart and reach a destined point, or will you continue to drift around in circles while the wood-lice riddle your mooring?

WHAT CAN THE ORCHARDIST DO TO COMBAT THE JAPANESE BEETLE?

GEORGE S. LANGFORD, Specialist in Insect Control

University of Maryland, College Park, Maryland.

Once the Japanese beetle appears in any community in destructive numbers, one of the first questions asked by farmers, fruit growers and householders is, "What can I do to control Japanese beetles?" A quick, simple, straight-forward, efficient and all-purpose remedy is wanted. To be absolutely frank, such a remedy is not known. There

are a number of control practices in use. Some of them are very good for specific purposes, but since there is no all-inclusive remedy the full force of control can be obtained only by coordinating all control methods in such a way as to secure the maximum effect. This use of every known method will permit all people with a beetle problem to actively engage in control work and become a part of the general state-wide retardation program.

Japanese beetle control may be roughly divided into two phases.

1. *Control practices for temporary relief.* These practices involve such control as spraying, trapping, dusting and cultural practices.

2. *Control practices for permanent relief.* These practices involve biological control, such as the establishment of parasites and disease.

Practices for Temporary Relief

Spraying. Sprays are quite effective for repelling beetles and protecting many plants. The fruit grower is fortunate in that he is usually equipped to apply spray materials properly. Spraying for Japanese beetle control on peaches and apples may be divided into two parts.

1. Prevention of damage to late ripening fruit.
2. Prevention of damage to early ripening fruit.

The protection of late-ripening fruit is a comparatively easy matter. It adds to the cost of fruit production, but it can be accomplished. Two extra sprays at the peak of the beetle season may be needed, but usually one good application of arsenate of lead, properly timed, will keep the beetles from destroying tree foliage and fruit.

The protection of early ripening fruit is much more difficult. It will probably be impossible to eliminate damage completely in all cases because once the fruit begins to ripen, beetles will cluster on it regardless of sprays. However, much can be done to ameliorate damage and relieve losses. The following program if followed without hesitation or delay will enable the fruit grower to harvest the bulk of his fruit. The words *hesitation* and *delay* are emphasized in these recommendations because one or two days of delay may mean the difference between salable or unsalable fruit.

1. Start spraying just as soon as Japanese beetles begin to collect in the orchard.
2. Spray with a non-poisonous material.
3. Spray every 7 or 8 days until the fruit has been harvested.
4. Pick all fruit slightly green.

The question of the best spray materials to use frequently arises. The past year the Department of Entomology at the University of Maryland tested 18 spray mixtures. Arsenate of lead with an appro-

priate sticker was the best of the spray materials used. Derris or rotenone dust with a good sticker was the most efficient of the non-poisonous materials tested.

Other control practices that are useful in reducing beetle damage in a community are trapping, the use of crops not fed upon by beetles, delay in planting corn and plowing, discing and harrowing to pulverize soil and kill grubs.

Trapping. Traps are not effective for completely protecting fruit trees from damage. They catch large numbers of beetles and in that way reduce the total number of beetles in the community. Research at the University of Maryland indicates that if properly operated, and used at the rate of 1 trap to each acre of land, from 30 to 50 per cent of the total number of beetles produced on a farm may be caught. Over 275 tons of beetles were caught in Maryland in 1940.

Cultural Practices. The practice of delaying corn planting has become rather general in heavily infested areas. The County Agent in Cecil County states that over 50 per cent of the farmers in that county are attempting to delay corn planting to avoid beetle damage. This practice in Maryland, while it has the advantage of eliminating much beetle damage, quite often upsets the entire farm program.

A three-year study of planting dates in cooperation with the agronomy department, indicates that the marginal period for planting to avoid both beetle and frost injury is narrow. On the basis of the work done, it appears that there is no certain planting date which will guarantee freedom from both types of injury. In exceptional years, injury will occur. The best that can be done is to use dates that on an average are favorable. The following planting dates are being suggested to growers in northeastern Maryland.

Long season corn	May 25—June 1
Medium season corn	June 1 to June 7
Short season corn	June 7 to June 14

Plowing, harrowing, and discing are effective in killing many grubs during late fall and early spring. If properly done, this procedure will kill from 25 to 50 per cent of the grubs in the ground.

Practices for Permanent Relief

The ideal way of obtaining permanent relief from the Japanese beetle is to establish a biological complex that will reduce the beetle population to a point below which it would not cause commercial damage. Recent developments with both parasites and the milky white disease, afford encouragement. It should be stated however, that biological control is slow. People are eager to have this work done but tire of waiting for results.

Biological control in Maryland is a major endeavor and is being stressed. To date practically all biological control work has been confined to work with the milky white disease and two species of parasites; *Tiphia vernalis* and *Tiphia popilliavora.*

Milky White Disease. The milky white disease is very effective in killing Japanese beetle grubs. Tests in Maryland indicate that from 50 to 80 per cent of the grubs in properly-treated land will be killed in one year. This disease is now being widely disseminated throughout the State. During the past year over 10,000 pounds of spore dust were produced and over 8,843 properties, involving 4,533 acres were treated. Every effort has been made to distribute the disease evenly in heavily infested areas. Even distribution has been accomplished through the use of maps blocked off into square-mile areas. In the most heavily infested areas three 1-acre plots have been treated in each square mile. Over 1,300 square miles have been treated in this manner. This disease shows so much promise that it is planned to increase the production and distribution of the disease.

Parasites. Parasites offer another possibility of permanently reducing beetle populations. Two species of Tiphia wasps, *Tiphia vernalis* and *Tiphia popilliavora,* have been used in Maryland. During the past three years a total of 414 colonies have been released. At present an attempt is being made to rear *Tiphia vernalis* by mass production methods. Last spring over 75,000 eggs were obtained.

NOTE. During the discussion on Japanese beetle control a demonstration which had been set up in cooperation with, and under the observation of A. F. Vierheller, was conducted. The purpose of the demonstration was to show the effectiveness of the milky white disease for killing Japanese beetle grubs. Comparisons were made of the ability of grubs to survive in *treated* soil as compared with the ability of grubs to survive in *untreated* soil. The demonstration showed that over 94 per cent of the grubs placed in treated soil were dead, when compared with a similar number placed in untreated soil.

THE EUROPEAN CORN BORER*

ERNEST N. CORY, State Entomologist, University of Maryland,
College Park, Md.

Another imported insect threatens to be a serious factor in Maryland agriculture. This pest was first discovered near Boston, Mass., in 1917, and at Schenectady, N. Y., in 1919. Since its first discovery, it has done serious damage to market and field corn in the New England States and in Ohio, Indiana, Michigan and in Kent and Sussex Counties in Ontario, Canada. It is now widely spread from the northeast as far south as Virginia and west to Illinois.

*Md. Agr. Exp. Sta. Mis. Publication No. 727, Dept. of Ent.

This pest has been the subject of intensive research in its biology and control, and at one time the cornbelt was so fearful of its depredations that ten million dollars was spent on demonstrations of methods of control that had been worked out up to that time. In Canada the pest temporarily forced the virtual abandonment of corn culture in two counties, but those areas gradually returned to corn growing when partially successful measures of control were adopted, more tolerant strains of corn developed, and parasites gradually became somewhat effective in reducing the menace.

The insect, known as *Pyrausta nubilalis* Hubner, is a moth with a wing expanse of a little over an inch. The female is fawn color with lines of brown on the upper wings. The male is slightly smaller and of a reddish brown color. These moths appear in June, and the female deposits an average of 350 eggs in masses of 5-50 on the underside of the corn leaf. The eggs hatch in 5-9 days into borers about ⅛ inch long. These young borers feed on the blade, making a series of pinhole punctures along the edges of the leaf, and finally migrate to the tassel. Here they enter the base of the tassel, so weakening the stalk that a large percentage of the tassels break over. In examining fields to learn whether the borer is present, the *broken tassels* often serve as indications of the presence of the borers. Subsequently the small borers leave the tassels and enter the stalks and cobs. The number of borers in the stalks determines in a large measure the yield of corn and fodder. Over one hundred borers per stalk is a common occurrence in heavy infestations. Over 70 borers per stalk were found in many of the heavily infested fields in Somerset county. Under such conditions the entire pith is destroyed, leaving the fodder entirely worthless, and the ears cannot produce much grain.

When the borers have completed their growth, they are about 1½ inches long, dull light brown in color, with a darker dorsal stripe, and indistinct spots. The larval stage lasts about 44 days in the first generation, and the pupal or resting stage requires approximately 9 days, making a total life history of about 60 days. A second generation, and in Maryland possibly a third brood may be present. The pupation takes place within the stalk in the first generation, but may occur in field trash in the over-wintering brood.

Control

If it were possible to destroy completely all crop remnants and large weeds in any farming community, there is little doubt that the borers could be materially reduced. But this procedure seems to be rather a remote possibility. Even if this could be accomplished, there remains the possibility of moths coming into such an area from elsewhere, as they are fairly strong fliers.

Destruction of the crop remnants is undoubtedly desirable and this can be accomplished in the following manner: Cut stubble low by use of a sled cutter; shred or ensile the fodder, or feed it in a pound, or feed-

lot, taking care in the spring to burn all stalks that have not been thoroughly trampled in the manure; burn cobs, as many borers live over in the cobs; and, finally, plow down all debris early in the spring, using a wide bottom plow. Do not use any type of tooth cultivator that will drag parts of the stalks to the surface in subsequent preparation of the land.

These efforts likewise will have to be on a community basis to insure best results. In areas of high priced market corn, some success has been achieved by the spraying and dusting of corn so timed as to secure a kill of the small borers before they get into the interior of the plant.

No formal seasonal history studies have been pursued in Maryland. Consequently, exact dates for spraying or the completion of spring plowing must be worked out. Up to the summer of 1939 no major injury had occurred in Maryland, although the pest has been known to be present in the lower Eastern Shore counties since 1930.

Late planted corn on the lower Eastern Shore came through in better shape than early plantings, and some hybrids seem to be somewhat tolerant. Our problem is to find the most resistant or tolerant corn hybrid that can be planted late to escape borer and Japanese beetle injury and to demonstrate methods of utilizing corn fodder in such a way as to kill the majority of the borers, and at the same time interfere the least with the established agricultural practices.

THE FUTURE OF THE APPLE INDUSTRY

PORTER R. TAYLOR, Chief, Fruit and Vegetable Division,
Surplus Marketing Administration, U. S. Department of Agriculture.

After a generally profitless decade, apple growers over the United States are greatly concerned over the future of their industry, and the opportunity it holds for them as producers of fruit.

I believe that you will agree with me that a major problem in the future will be how the efficient grower with a reasonably good market outlet can sell his fruit for enough to pay the cost of production and still make a profit on a reasonable investment. During recent years growers who were able to do this have been the exception rather than the rule.

Reduction of costs through efficient and economical production is a fundamental principle for success in any business. While there is still room for progress in that direction, I believe that those who have studied the facts will generally agree that the cost of apple production is not high in most orchards. There will always be a place for more efficient production which will yield a larger proportion of fruit of the more desirable market varieties, grades and sizes. But as a whole I believe that we can agree that apple production is relatively efficient and that only small economies in production costs can be expected in the future.

We may even find that the production of more desirable fruit from a market standpoint may be somewhat more expensive because of increased thinning, spraying, more careful handling, etc.

I believe you will also agree that the primary difficulties of the industry during recent years have been in the field of marketing. If this conclusion is correct, then we should analyze the conditions relating to apple marketing to determine what present problems are and whether they can be remedied so that the efficient grower may expect a more satisfactory income from his fruit. While there are many factors which should be considered in this respect, there are a few which seem to be of major importance at this time. But before we attempt to consider future conditions, perhaps it would be well to look back and see what has happened in recent years which might suggest some of the probabilities of the future.

For many years the apple was without competition as our most important fruit. Strictly commercial apple production increased in many new areas, while farm production declined. Foreign markets were opened and absorbed large quantities of fruit during the decade of the twenties and concealed somewhat the fact that our domestic consumption was gradually declining.

But, with the advent of the depression, several factors combined to change the picture quickly. Foreign outlets were restricted materially as a result of reduced world trade, import restrictions, and new production in other countries. Drastic reduction of consumer income within this country caused a serious decline in domestic apple prices. Citrus fruit increased in production so that in several recent years the combined crop of oranges and grapefruit has exceeded the volume of apples, specially in commercial districts. This competition was further increased by aggressive citrus merchandising and advertising programs.

With the improvement of consumer income during the latter part of the past decade, apple prices did not share in the general improvement in those years when production was large and considerably in excess of consumption requirements. This was further aggravated by the biennial cycle of production with large crops during the odd years and much smaller crops during the even years. As a result, growers received low prices during the seasons of heavy production, but returns were not enough higher in the years of smaller crops to make up for the losses incurred in the other seasons.

With the beginning of hostilities in 1939 the situation became even more complicated due to loss of foreign outlets which had been absorbing from seven to twelve million bushels a year. Last year three million bushels of apples were exported but it now appears doubtful whether more than one million bushels may be exported this season. The loss of this outlet is naturally more serious in the districts which produced the varieties of apples normally sold in the export markets.

Prior to the beginning of the war, the industry was producing a volume

of fruit well in excess of consumption at satisfactory prices. Over eight million bushels of the 1937 apple crop were purchased by the FSCC and distributed through relief channels, even though prices continued low throughout the season. Similar purchases from the 1939 crop totaled over nine million bushels and actually more than offset the lost export volume. Prices during that season started at low levels but rose gradually to satisfactory levels in the latter part of the marketing period.

Production in 1936 was light and prices were the best in recent years. The crop in 1938 was larger but little difficulty was experienced except that prices declined considerably during the latter portion of the season. Exports were greater during the 1938 season, in part due to this country's favorable position in the British market as a result of the trade agreement.

During the current season production was of average amount and should have presented no special problem except for the fruit which normally would have been exported. A purchase program was developed to meet this situation and over three million bushels were purchased prior to January 1. But the December storage report showed that the volume of apples available for fresh domestic consumption after that date was the largest on record, and 6.6 million bushels greater than last year. While consumer buying power is expected to be substantially better than last year, competitive citrus supplies are estimated to be about 5 million boxes above last season. Apple prices so far this season have been well above last year in the eastern and midwestern states, and about the same in the west.

From this brief statement of facts, it would seem rather clear that prices have been reasonably satisfactory to growers in recent seasons of light production, but generally unsatisfactory in other years. During most of the past decade grower prices were remunerative only in those seasons when domestic fresh fruit sales were about seventy million bushels. Prices were lowest in those years when offerings exceeded this amount, especially with a maximum of over 100 million bushels in 1937 when resulting prices were disastrous.

It would seem only reasonable to conclude that the low prices during certain recent years have been due to the effort to force more fresh fruit on the domestic market than it would absorb except at very low prices. If this be true, then more satisfactory prices can come about chiefly through the development of methods to prevent a recurrence of such conditions in the future.

Now let us look to the future. On the basis of experience to date, we may fairly assume that as long as war continues, this country must be able to absorb in domestic outlets the 10 million bushels which have been exported in an average prewar year. Whether these export outlets are reopened in whole or in part at the end of hostilities depends upon the financial ability of such nations to purchase apples and upon their willingness and ability to trade with the United States. Thus, we have no

right to assume that previous export demand will be restored with peace, however desirable that situation might be from the welfare of American growers.

While it is difficult to forecast the trend of domestic consumer buying power in the future, a continuance of the defense program as now contemplated would appear to justify an expectation of good consumer income for a few years to come. Present schedules indicate that defense expenditures are likely to continue in substantial amounts until 1944 at least. But we must not forget that apple prices were not satisfactory in 1926 and 1928, years of large production, when general business conditions were favorable.

If the chief problem of the apple industry is to find a way to handle the crop in years of large production so as not to flood domestic fresh fruit markets, what steps can be taken to achieve that end?

First, many varieties have been continuing in production which have ceased to be desirable from a market standpoint. Under the 1939 FSCC program, 87 different varieties were purchased. Of these, the ten of which purchases were largest included 76 percent of the total purchases, leaving a balance of 2,146,000 bushels, or 24 percent, divided among about 75 varieties. During the current season both the national and state apple committees recognized the danger in continued support of such undesirable varieties of fruit, and to date only 20 varieties, most of which are of recognized commercial merit, have been included in any quantity. While the removal or topworking of such fruit may not involve a large proportion of the crop, it will correct one of the most serious difficulties, namely, fruit for which there is not satisfactory market demand under present conditions.

While it is too early to determine what our position may be in the future if expert outlets are much reduced, the same problems may arise in the case of those export varieties which the domestic market will not absorb at reasonable prices.

Second, if large production provides a supply of apples well above market requirements, then it would seem to be common sense to put only the better grades of fruit into the fresh outlets which are expected to be the growers' major source of income. In 1937 there were probably enough U. S. No. 1 grade apples produced to supply all the fresh market that would pay a reasonable price for fruit. There are very few seasons when the total crop is so small that fruit below the Utility grade is needed to supply fresh fruit channels.

Third, apples coming out of storage are meeting a steadily increasing competition from larger citrus production.

During recent seasons, the volume of commercial apples sold domestically from cold storage after December 1 appears to have exceeded 25 million bushels in only one season, 1937, prior to this year. As long as export outlets are severely curtailed, December cold storage stocks should not be as high as 25 million bushels, if satisfactory returns are

expected. The fact that prices have usually not risen enough during the storage period in recent years to pay for the cost of storage should be conclusive proof that too much fruit has been stored. Under these circumstances it would seem unwise to store fruit of desirable varieties and sizes below the U. S. No. 1 grade or its equivalent. Other varieties should not be held unless there is a special market for them. Experience has shown that the practice of placing fruit in storage because it could not be sold in the fall was expensive from the cost of storage and even more so from the depressing effect of the increased supply on the market price.

Fourth, closely related to the grade and storage problem is that of condition. Anyone who has had an opportunity to see a large volume of fruit as it moves into consumer hands must realize that a substantial portion of the supply is not in good enough condition to give consumer satisfaction and create a strong demand for more apples. The problem of serving large storage stocks has resulted in much, if not most, of the fruit moving into consumption when it was past its prime condition. This would largely be eliminated if storage stocks were kept in line with consumptive requirements. Much of this problem with regard to the satisfactory condition of export fruit was eliminated when the "export standard" for condition was developed. Perhaps we need a somewhat similar standard for domestic markets so that apples will move into consumption in the best possible condition to give maximum consumer satisfaction.

Fifth, the restriction of apples packed for market to the better grades will be made much more readily if by-product outlets are available which will pay the approximate cost of production of the lower grades of fruit. You are only too familiar through personal experience with the low prices which have usually prevailed for such fruit whenever crops have been large. And yet during the past season you have seen prices paid for such fruit which were at a level not far from production cost. Very recently you have seen fruit intended for marketing in fresh form actually diverted to canning outlets at prices in line with the fresh market.

From these experiences it would seem that we may conclude that the price paid for fruit for processing depends primarily upon the general apple supply situation. The proportion of the final price of canned apples or apple sauce which represents the growers' actual return for apples is relatively small. When the grower received 60 cents per cwt. for apples delivered at the canner, the cost of apples will represent about one cent for each No. 2 size can of apple sauce which retails for many times that amount. Yet such sauce, as well as canned apples for pie bakers, to a large extent is used as a substitute for fresh apples used for the same purpose. Because of this substitution, as well as the increase in price which would result, it would appear desirable that every effort should be made to secure a price for apples for by-product uses which more nearly covers the cost of producing such apples.

Sixth, one or more new outlets for apples must be developed, and apple

juice appears to offer the best possibilities of any present product. During the past fifteen years the volume of tomato juice has grown to over 13 million cases, of grapefruit juice to over 10 million, and in less than ten years pineapple juice has developed to over 10 million cases. If any such new outlet might be developed for apple juice, it would do much to solve the problem of marketing the lower grades of fruit in years of large production. This is especially important because a good quality of juice can only be made from sound apples. Experience would indicate that good apple juice can be readily marketed at prices which should return growers a more satisfactory price than is secured from fresh sales of Utility grade in years of large crops. Thus, the development of a substantial outlet for apple juice should provide double opportunity of securing a fair price to growers while at the same time relieving the pressure on the fresh fruit market.

In summarizing, it would appear that the market position of apple growers would be substantially improved if trees of undesirable varieties were removed or topworked, and if the quantity of apples offered for sale as fresh fruit was limited to a volume approximately equal to the domestic consumption and of the best grades available and in prime condition to give consumer satisfaction. Steps toward better grades and condition will be achieved through the sale of fruit for various by-products. The opportunity to secure better prices will be increased if some new product can serve as an outlet for sound fruit of intermediate quality. If apple juice can be developed to the same volume as tomato, grapefruit or pineapple juices have been during the past fifteen years, much of the pressure on the fresh fruit market should be relieved, with substantial improvement in the prices received for fresh fruit.

Many of you will doubtless agree with most if not all of these suggestions, but will say that even though they are good they cannot be carried out in any practical manner. If we assume that apple growers in the future will continue to follow their old methods of individualists, then such improvements are perhaps beyond the limits of practical accomplishment.

But if the same growers have reached the conclusion that they must cooperate to a reasonable degree if they are to survive financially, as I believe most of them have, then the future picture is quite different. Of the six suggestions made, only one can be carried out effectively by growers as individuals. That one relates to the removal of trees of undesirable varieties or of marginal character.

Each of the other suggestions requires a varying degree of group action to secure the desired result. As an individual, each grower will probably believe it to be to his best interest personally to sell all of his own fruit, even though a portion of it be of inferior grades, in order to receive the maximum possible income. Yet most, if not all of you will agree that if all inferior fruit were kept from the fresh market, total net returns to all growers would be greater. Under such

a program the consumer would receive a better quality of fruit in ample volume but without overloading the market and depressing prices. Everyone concerned would benefit except those who are interested only in the number of units of fruit handled without regard to the financial return to the grower.

Programs of this general character have already been successfully used in the case of peaches, pears, plums, and prunes, grapes, oranges, grapefruit and tangerines in six different states under the authority of the Marketing Agreement Act of 1937. Such agreements are administered by grower and shipper committees and certain of them have operated for as long as seven years, indicating that the industries which cooperate in such programs are at least reasonably well satisfied with the results of such cooperation.

Much of the effectiveness of such programs depends upon prompt and unbiased enforcement. Four circuit court decisions have sustained the constitutionality of these agreements and regulations issued under them. Frequently in the past I have heard it asserted in apple meetings that restriction of the marketing of certain grades was unconstitutional. These assertions are directly contrary to the opinion of the Circuit Court in one of the four decisions which contained the following comment.

> "The Constitution does not forbid State or nation to legislate for the public good on economic lines. If the economic end is to be reached by an interstate regulation of commerce, the Congress may and must devise the regulation."

Apple growers are denied the use of the marketing agreement method of grade regulation as long as the specific prohibition of the Marketing Agreement Act is included in the Act.

Grower organization of a bargaining type is necessary to the working out of a more remunerative price to growers for fruit used for canning. Practically all of this business is concentrated in the Appalachian, New York and Northwest regions, and the number of canners included is small. A grower group in each region could well function with canners in determining prices, grades, etc., which would work to the mutual advantage of each group. There appears to be a favorable opportunity for such a program in each of the eastern regions and its possibilities should be considered before there is need to use it next fall. Such a plan might well include a sound development of a market for juice of good quality.

In closing, may I point out that many of the problems now facing apple growers can only be solved through some form of group action. Unless apple growers themselves are willing and ready to assume this responsibility, they have no right to complain if apple production continues in its present unsatisfactory financial condition.

When we consider the unusual problems which are likely to result

from war conditions, the need for organized action is obvious. While the 1940 crop was of average size, we are now faced with the need to move a volume of fruit much larger than has moved in domestic commercial outlets in any recent year.

Unless there is some unusual damage to the crop during the coming spring months, within a few months growers may be facing the necessity of marketing a crop which may exceed the present one by perhaps 10, 20 or even 30 million bushels. Such a situation cannot be met by last-minute action as is so often attempted. Plans to meet this situation should be made at once and should be carried out systematically, if growers are to be prepared to meet the unusual conditions which may be encountered next summer and fall. During recent months a phrase has come into use with regard to the defense program which may be equally applicable to the apple industry. "It is already later than you think."

REPORTS OF COMMITTEES

Auditing Committee

G. William Gardenour, Chairman, reported the Treasurer's account to be in order, with receipts and expenditures properly accounted for.

Nominating Committee

Lloyd Balderston, Chairman, proposed the following nominations:

President—Joseph G. Harrison, Berlin
First Vice-President—Stanley M. Fulton, Hancock
Second Vice-President—Dwight T. Walker, Mount Airy
Secretary-Treasurer—Albert F. Vierheller, College Park

Executive Committee

R. S. Dillon, Jr., Hancock
A. Lee Schrader, College Park
O. R. Higgins, Hurlock
Lloyd Balderston, Colora
S. B. Waddell, New Windsor
G. William Gardenour, Smithsburg
G. S. L. Carpenter, Hagerstown
G. Rust Canby, Silver Spring
Russell C. Shaw, Stewartstown (Pa.)

Director to Maryland Farm Bureau:

J. Andrew Cohill, Hancock

Delegates to Annual Maryland Farm Bureau Meeting:

Marshall T. Heaps, Cardiff
E. D. McCain, Frederick

The nominations were adopted by unanimous vote without discussion.

Resolutions Committee

R. S. Dillon, Jr., Chairman, presented the following resolutions which were adopted after short discussion:

1. WHEREAS, the problem of legislation has become of increasing importance to the horticulture industry of this state, therefore

Be it resolved, That a Legislative Committee be appointed by the President of the Society to represent this Society in all legislative matters pertaining to agriculture and horticulture.

2. WHEREAS, the marketing of cull apples on the fresh fruit market has proven of immense detriment to the entire industry, therefore

Be it resolved, That the Maryland State Horticultural Society go on record as favoring national legislation looking towards the correction of the cull problem.

3. WHEREAS, provision has been made in the Agriculture Conservation Act for the removal of diseased and marginal apple trees, thereby looking towards the elimination of undesirable varieties and the enormous amount of cull apples produced by the industry, therefore

Be it resolved, That every member of this Society, as well as the various County Agents and the Extension Service of the University of Maryland, do everything possible to push this removal program to its fullest possible extent.

4. WHEREAS, extra appropriations were requested in the Governor's budget for the University of Maryland to take care of urgent needs of the industry in connection with the fruit inspection service, spray service, spray residue analysis, peach disease control and fruit by-products experimentation, and

WHEREAS, the energetic prosecution of the Japanese beetle retardation program is of vital interest to the fruit industry and the continuance of the special $40,000 appropriation for retardation work is vitally necessary, therefore

Be it resolved, That this Society through its Legislative Committee indicate to the Governor and the Assembly the urgent needs of these items and that a copy of this resolution be mailed to the Governor and to the Chairmen of the various county delegations in the legislature.

5. WHEREAS, it has been the Will of the Almighty to remove from our midst during the past year

Charles Philip Close, former Secretary of this Society, and David Maurice Wertz, a loyal member of this Society, therefore

Be it resolved, That this Society has suffered deep loss, that our sympathy be extended to the families of the deceased and that this expression of regret be placed on the permanent records of this Society.

6. *Be it resolved,* That we hereby express our thanks and appreciation to the President, who has served us well during the past year; to the Executive, Program and Dinner Committees for this program; to the speakers who have been willing to give their time in order to be able to give us their valuable information and service; to the staffs of the Experiment Station, Extension Service and various other departments of the University of Maryland for their exhibits and cooperation; to the Maryland Fair Board for financing the Apple Exhibit in Baltimore; to our commercial advertisers; to Appalachian Apples, the International Apple Association and the National Apple Institute for their services to the industry; to the City of Hagerstown, the Hagerstown Chamber of Commerce and the Y. M. C. A. for their many courtesies in assisting in the arrangements for this meeting; and to the Secretary-Treasurer, A. F. Vierheller, for his untiring efforts in behalf of our Society and the industry as a whole.

USING THE NEW METHODS FOR PEACH BORER CONTROL

OLIVER I. SNAPP, U. S. Department of Agriculture,
Bureau of Entomology and Plant Quarantine

For 11 years the speaker has been carrying on experiments with treatments for peach borer control other than the one involving the use of paradichlorobenzene in crystal form. This latter treatment is very effective, but sometimes causes serious injury to young trees, especially under conditions existing in the South. For several years the work involved the use of emulsions of vegetable or mineral oils in which paradichlorobenzene had been dissolved. As a result of this work, paradichlorobenzene-crude cottonseed oil emulsion was developed, and this was used on peach trees of all ages without causing injury.

Experiments with ethylene dichloride emulsion for peach borer control have been under way during the last 8 years. This material has been found very effective, even at low soil temperatures. It can therefore be used late in the fall and early in the spring, when it is too cold for effective use of paradichlorobenzene crystals or the paradichlorobenzene-oil emulsions. This allows the grower more flexibility in fitting the borer treatment into his season's orchard operations. The use of ethylene dichloride emulsion requires a minimum of soil preparation before treatment and no attention subsequent to mounding after treatment, and the cost is a little less than that of the other methods of peach borer control. For these reasons, my remarks will be confined to the ethylene dichloride emulsion treatment for control of the peach borer.

Ethylene Dichloride

Ethylene dichloride is a colorless liquid with an odor like that of chloroform. It is heavier than water and vaporizes freely at ordinary temperatures. The vapor is heavier than air and penetrates the soil

very readily. The chemical is only very slightly soluble in water, and it burns with difficulty when ignited by a lighted match. When the vapor of ethylene dichloride is inhaled, it has an anaesthetic action, although less rapid than that of chloroform. Unless breathed in high concentrations over a protracted period of time no harmful results need be feared in working with this compound. Long-continued contact with ethylene dichloride has been reported to have caused some skin irritation, and due care should be taken by people who have occasion to work with this material for long periods of time.

Preparing Ethylelne Dichloride Emulsion

To avoid any prolonged breathing of the concentrated vapor, the emulsion should be prepared out of doors or in a well-ventilated room. It is desirable that the air temperature be between 50 and 80 degrees F. Since the compound boils at temperatures below the boiling point of water, heat should not be employed in making the emulsion, and the liquid should be kept away from fire and open-flame lights.

The stock emulsion is prepared from the following ingredients:

	Parts
Potash fish-oil soap	1
Water	8
Ethylene dichloride	9

A good grade of potash fish-oil soap should be used; that is, one without an excess of caustic potash and containing approximately 30 percent of actual soap and 70 percent of water. The soap should first be put into the mixing vessel and the water added slowly while stirring, until the soap is well dissolved. The ethylene dichloride should then be added and emulsified cold by pumping the mixture into another container.

The stock emulsion may also be made by stirring. By this method the soap is first placed in the mixing container and the ethylene dichloride added slowly, a little at a time, with constant stirring. When the soap and ethylene dichloride are thoroughly mixed, the water is added slowly with constant stirring.

Commercially prepared emulsions are available on the market and bear directions for dilution and use on the packages.

Dilution and Dosage

Table 1 gives the quantity of water to be added to the 50-percent stock emulsion of ethylene dichloride to get 10 gallons of diluted emulsion of the different strengths and the dosages found by experiment to be most satisfactory for use on peach trees of various ages.

Table 1.—*Dilution of stock emulsion, strength of diluted emulsion, and quantity applied to trees of different ages.*

Age of trees (years)	Quantity of water and of stock emulsion to use to get 10 gallons of diluted emulsion of the proper strength.		Strength of diluted emulsion.	Quantity of the diluted emulsion for each tree.
	Water	50-percent emulsion		
	Gallons	*Gallons*	*Percent*	*Pint*
4 and older	6	4	20	½
3	7	3	15	½
2	7	3	15	¼
1	8½	1½	7½	⅛

Unusually large, older trees may require a little more than a half pint of the emulsion.

When and How to Apply the Emulsion

Ethylene dichloride emulsion can be applied for the control of the peach borer any time during the fall or spring. Best results will probably be obtained in the fall soon after the close of the egg-laying period of the peach borer moths, when most of the borers are small. In Maryland orchards this would be about October 1. The use of the material in extremely hot weather should be avoided, since injury is more likely to occur at high temperatures.

No preparation of the soil before treatment is necessary on loose, level ground. In some cases, however, cupping the soil slightly toward the tree trunk, to prevent the liquid from running off, or loosening the soil around the tree sufficiently to permit the liquid to be readily absorbed, will give better results. Any cracks in the ground around or extending out from the trunk should be filled with soil before treatment, in order to avoid undue concentration of the material on any part of the root system, which might result in injury.

The material is applied either by pouring or spraying it on the soil around the base of the tree, in such a way that the soil will absorb and hold it around the tree at the ground line. It should not be poured or sprayed on the trunk.

The quantity should be regulated rather closely, since applications much in excess of the suggested dosage may cause tree injury. A tin household measuring cup holding one-half pint, with marks for one-eighth and one-fourth pint, will be found useful in applying the emulsion. A bucket pump may be employed for applying the ethylene dichloride emulsion, and with a little practice the quantity delivered to each tree can be regulated without difficulty. A power sprayer, equipped with a device that we developed for regulating under pres-

sure the quantity of spray applied to each unit treated, may also be used for this purpose.

It is essential that a uniform mixture be obtained, both in the stock material and the fully diluted spray. The stock emulsion should be thoroughly stirred before any is taken from the container for dilution, and the diluted emulsion should be agitated before each dose is withdrawn for use around the tree. Each bucket of diluted material should be provided with a paddle for agitation in cases where the application is made by pouring. The operator should examine the emulsions at frequent intervals to be certain that they have not broken down, permitting the ethylene dichloride to form a separate layer at the bottom of the container. Broken-down emulsions should not be applied, as the portion consisting chiefly of ethylene dichloride may cause serious injury to the trees. The proper quantity of water should be added to get the recommended strength of emulsion, and the quantity used should not be greater than recommended. All the writer's work thus far has been with the emulsion, and information is not available at this time on the use of a miscible ethylene dichloride.

After the chemical has been applied, several shovelfuls of soil should be placed against the tree to prevent evaporation from the surface. After this the treatment needs no further attention.

An Investigation of Injury to Peach Trees in Eastern States, Attributed to the Use of Ethylene Dichloride Emulsion

Although for 5 years peach growers have used ethylene dichloride emulsion under commercial-orchard conditions for the control of the peach borer, very few cases of tree injury thought to have resulted from its commercial use had been reported until 1940, when a number of reports and rumors of injury to peach trees attributed to the use of ethylene dichloride emulsion came from several Eastern States. A 1,600-mile trip was therefore taken in October through Virginia, West Virginia, Maryland, Pennsylvania, New Jersey, and Delaware, where peach tree injury had occurred, in order to make a careful study of the situation.

Winter Injury the Chief Cause of the Condition Observed

Out of 50 orchards studied carefully, about two-thirds showed injury of one kind or another. Except for a limited number of cases, which will be discussed later, it is believed that the injury attributed to ethylene dichloride was actually caused by conditions that existed during earlier winters. It is well known that winter injury to peach trees often affects the trunk just at the ground line, the last part of the tree to mature in the fall. Since the chemical is applied close to that area, it is rather natural to place the blame on the chemical.

Six of the 50 orchards examined had not been treated for borer

control, yet there were as many dead and dying trees in these orchards as in those nearby which had been treated with ethylene dichloride emulsion. One of the best examples of this was found in one locality in Virginia, where three adjoining 4-year-old orchards had each a number of trees that were dead or dying from injury of exactly the same type, most of which was in the lower west side of these orchards. The middle orchard had never been treated for borers, whereas the orchards on both sides had been treated in the fall of 1939 with ethylene dichloride emulsion. A case was found in Delaware where a grower had used ethylene dichloride emulsion on half of his orchard and paradichlorobenzene on the other half. There were no injured trees in the part of this orchard treated with ethylene dichloride emulsion whereas there were dead and dying trees as a result of winter injury in the part treated with paradichlorobenzene. The injury in the Delaware orchard was not of the type caused by paradichlorobenzene, and furthermore the trees were too old to have been severely injured by the usual dose of that material.

Weather records show that the temperature in the middle Appalachian region was considerably above normal from November 1 to November 23, 1938, that for Pennsylvania averaging 5 degrees in excess of the normal. Snow measuring from 8 to more than 11 inches at most Weather Bureau Stations in this region fell on Thanksgiving Day, November 24, followed by a sudden drop in temperature to 7 degrees F. on November 26 at Winchester, Va., the coldest of the winter there, to 8 degrees on November 28 at Staunton, Va., on November 27 at Arendtsville, Pa., on November 26 at Gettysburg, Pa., and at Milford, Del., and to 1 degree F. on November 26 at Zionsville, near Allentown, Pa. The wood evidently had not ripened sufficiently by the latter part of November, 1938, to withstand such a sudden drop in temperature, and as a result there was considerable injury to tissues having only a moderate degree of maturity. A Pennsylvania grower who used paradichlorobenzene in the fall of 1938 and ethylene dichloride emulsion in the fall of 1939 reported that many more trees died in his orchards during 1939 than during 1940. There appeared to be a difference in the maturity of trees in the same orchard, as in some locations, usually at the lower elevations, there was more injury.

Several horticulturists who have studied this problem have reached similar conclusions as to the real cause of most of the injury that occurred.

An Associated Press release from Blacksburg, Va., dated October 6, 1940, a report from the Pomology Department of Cornell University, and another from the Horticultural Department of the New Jersey Agricultural Experiment Station all state that investigations by State workers show that injury to peach trees in these States resulted from winter injury rather than from a treatment for borers.

It is recalled that similar experiences followed the introduction of the

paradichlorobenzene treatment for peach borer control. An investigation about 20 years ago revealed that injury to peach trees in Georgia attributed to the then new paradichlorobenzene treatment was actually winter injury.

Injury Possibly Caused by Improper Use of Ethylene Dichloride

In 6 of the 50 orchards examined on this trip there appeared to be some possibility that ethylene dichloride had caused injury or had intensified a condition caused originally by winter injury. In one of these cases ½ pint of 85-percent stock emulsion per tree had been used instead of ½ pint of 20-percent emulsion as recommended, and here considerable injury no doubt resulted from the treatment, although winter injury was also found. No injury had resulted from the recommended dose of ethylene dichloride emulsion used in this orchard in the fall of 1938. In 5 other orchards—3 in Pennsylvania and 1 each in Maryland and West Virginia—an improper manner of application of the ethylene dichloride emulsion or failure to regulate the dose may have caused some injury, or may have contributed to the condition initiated by winter injury.

The investigation revealed that a number of growers applied all the ethylene dichloride emulsion on the trunk of the tree, some starting up as high as the crotch to allow the material to run down the trunk to control the lesser peach borer, bark beetles, and larvae of the oriental fruit moth in cocoons. For the most part, the material is not effective against these insects. Although in most cases no apparent damage resulted, this manner of application is objectionable because in shale or rocky soil or where there are cracks in the soil around or extending out from the tree the dose may run down the trunk below the ground line past where the borers are working, and this would result in poor borer control. Furthermore, material applied in that manner under such conditions may run down to the root system and might cause injury to the smaller roots.

In one Pennsylvania case twice the directed quantity of water was used to dilute the stock ethylene dichloride emulsion and then twice the directed dose was used, with no means of accurately regulating the dose. With wind cracks in the soil next to the tree and all the material applied on the trunk, the excess water would take more of it to the root system, increasing the danger of root injury. In another Pennsylvania case some injury may have resulted from pouring the entire dose of emulsion on the trunks of trees where wind movement of the trees had opened large cracks around the trunks. Treatment by improper methods, excessive dosage, or a defective emulsion may have been partly responsible for injury to peach trees on the lower side of a Pennsylvania orchard in which there were rows of uninjured trees treated with paradichlorobenzene. Areas that appeared to be winter-injured were found on trees receiving either treatment. Some trees received twice the recommended dose of ethylene dichloride, and three other growers had used emulsion from the container before it was used where injury occurred. Ethylene

dichloride emulsion as strong as 12 ounces of 33⅓ percent instead of the recommended 8 ounces of 20-percent had been properly used on peach trees of the same age in two nearby orchards with no resultant tree injury.

Observations similar to those just discussed were made in one orchard in Maryland and one in West Virginia, where it appeared possible that ethylene dichloride might have had a part in the injury that was reported. In the West Virginia orchard, the injury was restricted to weak, undersized 3-year-old trees in poor, rocky soil.

Some injury may have resulted in a Maryland orchard from the application of ethylene dichloride emulsion to trees by improper methods on soil with wind cracks. There were fewer injured trees in a part of this orchard that had received applications both in the fall of 1939 and spring of 1940 than in the part treated only in the fall of 1939. Winter injury was found in this orchard. The trees that may have been injured by the improper manner of application of ethylene dichloride emulsion in West Virginia were the weakest trees in a 3-year-old orchard on poor, rocky soil. These weak trees were about the size of normal 1-year-old trees. No injury had resulted from using ethylene dichloride emulsion on two 4-year-old orchards on the same farm.

Ethylene dichloride emulsion had been properly used on large orchards of various ages in each State visited with excellent borer control and no tree injury whatever. In some of these orchards the material had been used annually for 3 years. No tree injury resulted from the use of a double dose of ethylene dichloride emulsion in a New Jersey peach orchard in the fall of 1939. In one case in Pennsylvania only 25 trees had been removed in 1939 from orchards of 33,000 trees that received the ethylene dichloride emulsion treatment in the fall of 1938. Although these trees were not treated for borer control in 1939, the orchard manager blamed the poor quality of his 1940 peach crop on the ethylene dichloride used in 1938, which seems unlikely to be the case nearly 2 years after treatment.

In order to obtain further information on the margin of safety in the use of ethylene dichloride emulsion, and the possibility that it may be a complicating factor in connection with winter injury, a series of experiments is under way at the U. S. Horticultural Station, Beltsville, Maryland, in cooperation with the Bureau of Plant Industry of the United States Department of Agriculture. Since the block of trees in which most of the experiments are being made is to be removed in the spring, it has been possible to use the chemical at excessive dosages, all the way up to 100 percent. It is too early to forecast the final results of these tests, although preliminary examinations of the trees has thus far not revealed anything that would call for any revision of present methods of using ethylene dichloride emulsion.

FACTORS AFFECTING THE FUTURE OF THE PEACH INDUSTRY

GEORGE W. COLBORN, JR., Bountiful Ridge Nurseries,
Princess Anne, Maryland.

A multitude of vital factors affect the peach industry in many ways, but they can be grouped under two general heads (1) *PRODUCTION*, (2) *MARKETING*. If peaches are to be grown profitably, there must be a fine sense of balance between Marketing and Production.

PRODUCTION, the first in order must be in proper relation to consumptive demand. If there is a surplus, it cannot be marketed at a profit in most cases. Methods of production and handling of all types of fruit have shown great change during the past 25 years, due to the increased tempo of new business methods, not only in production of fruits, but in every other line of business. It has been said that no business can escape change and probably the fruit industry has shown a more drastic change during the past two decades than any other period in history of the industry. Not so many years ago, California and Georgia were known as the great peach centers of this country and produced practically 60% of all our peach fruit, but with increasing rapidity of transportation among other factors surrounding the marketing of the peach crop, this picture has entirely changed. In more recent years, peach producing centers have switched from these two areas and now no less than 17 major and 2 minor states produce our national supply of peaches, bringing an extended marketing season which presents many new problems to be solved.

Peach growing today is *fourth in fruit production* in the nation, and although the peach crop, as a rule, ripens when competition from other fruits and fresh vegetables is very serious, yet money is being made and will continue to be made in the peach industry. The peach grower today must be a highly competent man of unusual vision and wide experience. The day has come when the small peach grower, more than ever before, must improve cultural practices, weed out unproductive and low quality peach trees, and bring into production newer varieties which the market demands and which can be grown successfully in his particular location.

Great developments have taken place in recent years in new varieties, orchard practices, equipment and tools. At the same time, many new insect pests and virus diseases have also made their appearance to increase the hazards of peach growing. Science and research have contributed improvements by finding new sources of plant food, new spray materials, equipment, packages and machinery which was unheard of a few years ago. Today, however, they are in common use in every section where peaches are produced. The modern peach grower is called upon to apply a more intelligent application to make these modern changes work and requires definitely more knowledge and greater capacity for thought and ability to plan than ever before. At the same

time, he is called upon to expend a greater outlay in order to produce a crop, due to higher labor costs, increased cost of material and machinery, in order that crop and trees may be protected from the ravages of disease and insect pests. State Experiment Stations, U. S. D. A. and many private research workers are marching in the parade of science affecting plant growing, soil analysis, nutrients, pest control, packing and grading from every viewpoint, and the results of all of these findings are brought to the grower each year through the medium of these meetings, but there is such a multitude of subjects which must be covered that it is almost impossible for the grower to get more than a fundamental picture from these discussions.

It has been said by some, that we are trying to go too fast with most of this work, because the fruit grower does not have the opportunity of practical demonstration of all of this mass of research work at the proper time of the year. It would be better to confine a great many of these discussions to practical demonstrations in the field during seasonal plant growth or at harvest time, in order that the growers of a given area might take advantage of the information brought to them in this way. From observations made in the field, traveling in many peach areas, it would seem that the peach grower *is* taking advantage of the information that is brought to him in many ways, but continues to plant varieties haphazardly without due regard for competitive ripening time or regardless of the unsuitability of the varieties for his particular climatic and soil conditions. (This may be due in part, that State Experiment Station men probably do not have wide enough contacts with the growers in the various sections. Probably the grower does not call upon these men for information and guidance.)

It is not the intention of this paper to discuss varieties, yet it should be brought to the attention of the grower that he should be exceedingly cautious in planting large blocks of the newer introductions of peach until he has informed himself about the characteristics and behavior of the particular variety he may have in mind. The newer varieties of peaches have been bred and propagated with the idea of fitting them into particular conditions; therefore, when a variety demands a definite condition of soil and climate for its best behavior, definite information should be at the command of the grower to determine whether his soil and climate are suitable for the variety. Many varieties of good commercial possibilities have been condemned by peach growers in the past, due to the fact that they were totally unsuited and unadapted to his particular soil and climatic conditions. Many growers plant varieties observed in their travels or through personal discussion with other growers, without giving any consideration to his own particular problems of culture, climate and soil. Then if the variety turns out badly, nine times out of ten the nurserymen get blamed for the whole business; very often, being accused of furnishing him an inferior strain of the variety or an out and out substitution; whereas, the fault lies in the variety itself and its inadaptability to the growers' conditions. Here

your State Experiment Station men are in position to help, because in most cases they have detailed information on all of the newer varieties and are in position to inform you on the behavior of most varieties under given conditions.

A very great *essential factor in production* today is the *quality* and *integrity* of grade for the peaches which are offered for sale. Much has ben said in meetings such as this regarding the quality and grade of fruit. Much work has been done in the field by Government, State and Private Workers in order to teach the importance of a uniform pack for commercial markets. But from observations made throughout the peach producing areas, it would seem that the peach growers, as a group, have not yet fully come to realize the importance of putting only the best fruit into the basket. In a recent survey, when hundreds of packing houses were visited, it was a matter of utter surprise to see the careless manner in which packing was done in many packing houses. Much of the fruit was offsize, under colored, and low quality, yet into the basket it went to go into the hands of the marketers where it would be immediately detected, with subsequent lowered price and complaints.

It must be fully realized that if the grower does not cooperate with himself in the problem of *grade and quality*, that he is the loser, because he only fools himself by including in his pack the offgrade fruit which should be rejected in any event. It is the opinion of those most interested in marketing the peach crop, that "strict-to-grade" should be practiced by every grower today and at all times it should be the idea to give the consumer the very best that he can produce. One has only to go into the wholesale markets on any morning when peaches are in season and watch, in order to determine just what the wholesaler and retailer think of the fruit as it arrives. Many shipments from different growers go into the markets and are sold without even the lids being taken from the basket, while others are literally torn down from top to bottom, in order to determine just the amount of offgrade fruit which has been shuffled off by the grower into his pack. (If any grower wants to know how good a job he is doing with his pack, he has only to go to the market one time and watch how the buyers handle his fruit.) It is, therefore, essential, if the fruit grower is to get the most from his crop, he must sell the very best he has, packed and graded to standard. Only by so doing, may he successfully hope to compete.

There are many other factors concerning the production of peaches which must be passed over, due to lack of time, but which may be mentioned for thought and are bases on the setup for successful growing of peaches at a profit. (1) *Natural environment.* The selection of Sites for Commercial Peach Orchards, where natural handicaps will not terminate the life of the orchard below its Production Peak. (2) *Suitable labor* at the right price, in order that the crop may be produced and handled within the market time limit. (3) *Closeness to market,* with proper transportation facilities. (4) *Well set-up marketing outlets*

for fresh fruit, as well as processing plants for surplus production. All of these factors must be given consideration from every point by the grower, because if he is to succeed he must have information on every phase bearing upon cost of production and getting his crop to market.

The Second Part of this Discourse, covers *marketing,* and upon marketing the whole element of success for the peach grower must stand.

The great factor in marketing is competition. Possibly no fresh fruit in our markets today has so many competitors for the consumers' dollar as the fresh peach. In most sections it ripens at such time as may be found a long list of fresh vegetables, berries, melons and other small fruit. Not alone is the peach confronted with the entire list of other fresh fruits and vegetables, but at the same time it must compete against carryover from former peach crops in the form of canned, frozen and dried fruits. In discussing this matter with food marketers, we learn that ofttimes as fresh peaches come into the market, there is an immediate demand for canned, frozen and dried peach fruit. Hundreds of merchants have stated that when fresh peaches were placed on their counters, the demand for canned fruits tripled and quadrupled almost immediately. The reason for this is, that the housewife through her eyes has created an appetite for peaches, but often the price is beyond her means so she contents herself with purchasing the canned product for her pies or whatnot. Competition from other fresh fruits is small, with exception of citrus fruits; however, due to modern transportation and refrigeration, berries and fresh vegetables from all sections compete. The housewife today has very little difficulty obtaining any type of fresh vegetables, berries or fruits the year-round, regardless of where she may live. Thus we see that the introduction of the peach into the markets must be attended by all the publicity possible to overcome this competition for the consumers' dollar.

National income is a factor which affects prices the grower receives for his fruit. Peaches are considered a luxury fruit, and due to usual prices in most markets, it is consumed as a luxury fruit. Again, in most markets in our country, a wide sale has been experienced to the industrial worker. It has been estimated that the working classes of this country consume 70 percent of all the peaches produced in one form or another, and with this thought in mind, it is reasonable to suppose that as the index of industrial income rises or lowers, so will the price of all commodities rise or fall in relation to income. From reports issued by economic agencies as well as the U. S. Government, the income index today stands at about 80 and is expected to rise 10 to 15 percent during the next few years. Therefore, the grower of peaches may reasonably expect to receive profitable prices for his fruits, providing our production remains constant at somewhere near the present output of 65,000,000 bushels per year.

Here again the factor of *production* enters into the picture over the widespread territory into which peach growing has developed. Frost

belts, winter freezing and killing of wood and bud probably is the greatest controlling factor for our animal crops and at no time in the past sveral years has there been a saturation point in the market. The peach, by its very nature, seems susceptible to climatic change, both during the growing period as well as the harvesting of the crop. The well-known disastrous results of weather conditions this past season in most sections, particularly in the eastern and coastal peach areas, leads us to expect such climatic conditions will favor one section to the failure of another and be a vital influence in the price the grower receives for his crop. Production and Profit of the entire fruit industry are contingent on weather conditions.

The factor of *consumer demand.* How may it be increased to absorb any surplus above the normal basis we now experience? Many agencies today are working out plans whereby the consumption of peaches may be materially increased in one form and another. In the past the fresh fruit market has consumed the major portion of all the peaches grown, but due to scientific investigation and research, we are fast developing methods whereby surplus may be taken care of through the medium of jams, jellies, juices, canned fruit, frozen fruit and many other items of diet made from them, which was not thought of a few years ago. As science progresses in this direction, it is entirely possible that in years to come, not only in the peach industry but with all other fruits, ways will bé developed in some manner which will consume the costly surpluses which have gone down the river in the past.

Today many *advertising agencies* have been set up, some by individuals, others among grower groups and associations, with the entire idea of advertising to the world that they have a better peach. This is the message they bring to the consumers, telling them they have a better peach, more beautiful, larger, sweeter and in fact better than anything else they can get. This is the entire idea of such advertising and it is done by all forms of literature, newspapers and magazines, along with lithographed store and window displays, suitable labels on the packages, etc., and has a tremendous influence where correctly done. Most of this literature has been gotten up with a lot of eye appeal and carries a message with a great "punch" to consumers throughout the nation, stating that now is the time to get the fresh fruit at its best. (Therefore, it may be said to the grower, if he enters into any advertising scheme to bring Maryland peaches before the consuming public, see to it that the public gets only the best.)

The factor of *transportation and refrigeration* today exerts a great influence on the prices received for fresh fruits. Only a few years ago, before the advent of super highway boulevards, rapid truck transportation and modern day refrigeration, the peach grower had to depend on the very uncertain delivery of his crop by rail transportation. Very often his crop arrived in the market late, most of the time in bad condition, and usually netted him a total loss. Today the picture has changed. The tempo of transportation has been stepped

up by all methods of delivery and every agency is doing the utmost to deliver fruit crops into the markets promptly. Today "hot shot" fruit trains span the nation in less than 100 hours. High speed trucks on highways carry fruits into every section throughout the land, and from any of the states mentioned in the peach belts, it is entirely possible to deliver fresh fruit into distant markets in 24 to 48 hours. Refrigeration makes it possible for the peach grower in South Carolina to place his tree ripened fruit in New York the second morning in perfect condition, which means that the quality of the fruit, when it reaches the consumer, has been vastly improved. With improved transportation and refrigeration, it is natural to suppose that the grower will do his part by allowing his fruit to approach a better maturity and go into the markets in the very best of condition.

The last vital factor in our discussion from the standpoint of profit is *competitive production areas.* Every grower today is interested in his particular section and the possibility of overcoming overlapping ripening periods in order to keep down competition in this form. Research workers are compiling records of exact ripening dates in order that tables may be set up for the guidance of growers in all sections. The peach regions today are concentrated in California, Georgia, North and South Carolina, New Jersey, Ohio, Pennsylvania, New York, Illinois, Michigan, Maryland, Tennessee, Missouri, Arkansas, Connecticut, Massachusetts and Texas, with a few areas in Colorado and the state of Washington. Some of these states are in direct competition with each other at ripening time, due to close proximity of ripening dates in many varieties, but our eastern growers are only concerned with a very few sections which enter into competitive overlapping seasons. South Carolina is rapidly advancing to the point where it will be among the larger production centers of the east. (Georgia has long held this position, but due to certain insect pests and disease, the tree population has decreased, and unless certain factors can be overcome in tree behavior and virus diseases be controlled, it is the opinion of many that Georgia tree population will continue to decrease.) South Carolina has entered into the peach growing industry in a spirit of big business and the growers are continuing to plant. However, they are commencing to learn a vital mistake was made in confining heavy planting, during the past several years, to one variety. Some of the growers realize this serious condition and are planting varieties earlier and later than Elberta for future production. These new varieties are apt to cause an overlapping of seasonal ripening with other territories, Georgia, Alabama, North Carolina, Virginia, Kentucky and Tennessee being most vitally affected. It is reasonable to suppose that as newer varieties of commercial merit are brought to the attention of commercial growers, many sections will continue to be planted to varieties which will sandwich in between ripening seasons and thus try to escape competition of overproduction. If peaches are to be grown at a profit in sections adjacent to highly populated tree areas, then certainly must the grower recast his whole variety list and set up over again with the newer

commercial varieties which can keep him out of competition. Peach growers in every section today are asking the question, "What shall I plant in order to keep out of other competitive areas?" When we stop to consider that Virginia, Maryland, W. Virginia, Illinois, Kentucky and New Jersey with certain sections of Pennsylvania, are all in the latitude of competition with a few days difference between the high and low sections of production, certainly more attention must be given to varieties in their ripening order, if we are to escape gluts from over-production in a very short marketing season.

As stated, it is not the purpose here to enter into a discussion on Varieties, but it would be well to remind the peach grower that unless he gives this extremely important factor due consideration, in the future, competition from areas nearby will depress market prices on standard varieties now being grown to the point where they are no longer profitable.

Note, that throughout this discussion, we have purposely kept away from figures and prefer to give areas where commercial plantings are taking place today. Most prominent may be mentioned are Central Alabama, South Carolina, Illinois, Michigan, Pennsylvania, West Virginia, Ohio, New York, Delaware and Maryland, New Jersey and Arkansas. Georgia is increasing her planting moderately at the present time. Northern Alabama and Tennessee are only setting normally. South Carolina is continuing to plant in the Hill sections as well as on the sands of the southeastern part of the state. It has been estimated, without access to figures, that South Carolina is continuing to set at the rate of about one-quarter million trees per year. In the North Carolina the peach section seems to be moving eastward out of the Sandhills and is going more to the Coastal regions. However, these plantings are more or less an experiment and it remains to be seen whether this section of the state will develop permanently into a peach area. South Central Virginia is continuing to plant in fairly good numbers. Roanoke as well as the valley section south of that point is only planting normally, possibly no more trees are being planted at present than the current loss. Crozet section shows little planting being done, due to the fact that most of the peach land has been filled up. The Timberville and Winchester section are planting about normally as in the past. Among large plantings in the north has been Pennsylvania, where a great many trees have been set out during the past several years. The extremely erratic weather conditions experienced in most of the peach sections in Pennsylvania, however, are such that it is doubtful whether they will increase as a factor in competition. Western New York and Northern Ohio have never fully recovered from the freezes of 1935 and 1936. Many orchards abandoned at that time have never been replanted. In so far as Maryland is concerned, however, these regions will never be serious competitors. The competition for Maryland today is from the Southern states, Central state areas east of the Mississippi River, Pennsylvania, New Jersey and Delaware. In considering future

plantings, it would be well to have a thorough knowledge of what these particular sections are doing in varieties and number of trees planted as a vital factor for the future of peach growing in the state of Maryland.

To sum up the factors *for and against* the peach industry in the past few years, it would seme that as long as our normal production of fruit is held at about the same figure as we are producing today, that there is not much danger of a saturation point. I can see no need for the Red Light or Stop Sign to be put on peach plantings, and give you some of the reasons. Quoting from Government statistics, in 1935 there were roughly 54,000,000 bearing peach trees and 13,000,000 nonbearing peach trees; whereas, in 1910 there were approximately 94,000,000 bearing peach trees and 42,000,000 nonbearing peach trees. Production in family orchards in districts where it is almost impossible today to grow peaches unless they are properly sprayed and cared for, has become negligible, and these orchards are responsible in part for heavy decrease. Further, most growers in close-by areas are inclined to refer to heavy plantings in South Carolina as a menacing factor to the future of peaches, when in reality South Carolina will not compete with peach production in this area at marketing time, to any extent. Again, consider that many South Carolina, as well as concentrated plantings in other areas in the last eight years, have almost reached a promotional state comparable to plantings in the Sandhill areas of North Carolina, a few years back. Thousands of acres of these new plantings will be abandoned and never come into fruiting. This is already becoming noticeable in certain Southern areas. All peach growers are familiar with the fact, that no peach orchard can be neglected for more than two years with the hope of ever bringing it back into production. We should also consider the death rate of peach trees from low winter temperatures, with diseases such as peach mosaic in the southwest, peach nematode, phony peach and delayed dormancy of southern peach areas, potential hazard of peach yellow in all sections and the so-called "X disease" and peach tree canker in the northern areas, which are today eliminating peach orchard plantings almost faster than new plantings are being made throughout the United States. Also consider the comparative short life of peach trees, especially in the northern districts, and the difficulty of reestablishing a peach orchard on a good orchard site that has been previously planted to peaches. This factor being especially noticeable in the central and southern areas. Neither can I see a Green Light with its inference to go ahead without regard to possible danger in the peach industry, to plant just for the sake of planting or because you have been making money on peaches, or planting varieties just because your neighbor made money last year or giving no thought to your harvesting problems and market outlets for the fruits you expect to raise, or to the many other production factors.

Rather the peach grower should heed the caution sign, plainly visible to the peach industry today. He should give more thought to orchard

location, more thought to disease factors in his area. In selecting planting stock, give more thought to variety selection on the basis of hardiness of bud, season of ripening, appearances of fruit, quality of fruit, resistance to brown rot, bacteriosis, and the host of other virus diseases, and how the fruit will carry to markets. Try to estimate what your markets are going to take in fruit produced. Again plan to cash in on the great undeveloped markets of our highways and small communities which, often never see fresh peaches, give due thought to canning and by-product factories as possible outlets for your products and develop these cooperatively, if necessary. Give more thought to your picking and packing methods, to the package you market. No man can expect to win all the time in any business and peach growing today, however large or small, is a business and must be run on a business basis, if you are to be successful over a period of years. If these factors are worked out, I feel that the peach industry will always have a future and will continue to be recognized as one of the most substantial branches of Agriculture.

NEW METHODS FOR SCAB CONTROL—IS THE NEW SPRAY ON THE SOIL OF VALUE?

K. J. KADOW and S. L. HOPPERSTEAD
University of Delaware, Newark, Delaware

Most fruit growers now know that apple scab over-winters primarily in scab-infested leaves which have fallen to the ground. This is evidently the only way apple scab over-winters in this general vicinity, although in some parts of the world, including some of our New England States, stem lesions are produced which may also over-winter the scab organism.

During the winter and early spring, scab infected leaves on the ground develop spores which are liberated in the spring during rainy periods.* (See Fig. I.)

If our statement that scab over-winters only in leaves on the ground is correct, it then follows automatically that complete destruction of the leaves on the ground, or of the scab fungus in them, is a likely method of controlling this disease. As a matter of fact, instances of

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* According to Wis. Res. Bul. No. 73, the length of a rainy period necessary for scab infection varies with temperature as follows:

When temperature during a rainy period is about	Infections will take place in about
43°F	13 to 18 hours
50°F	9 to 11 hours
59°F	5 to 8 hours
60°F	8 to 10 hours
68°F	4 to 6 hours
75°F	4 to 6 hours

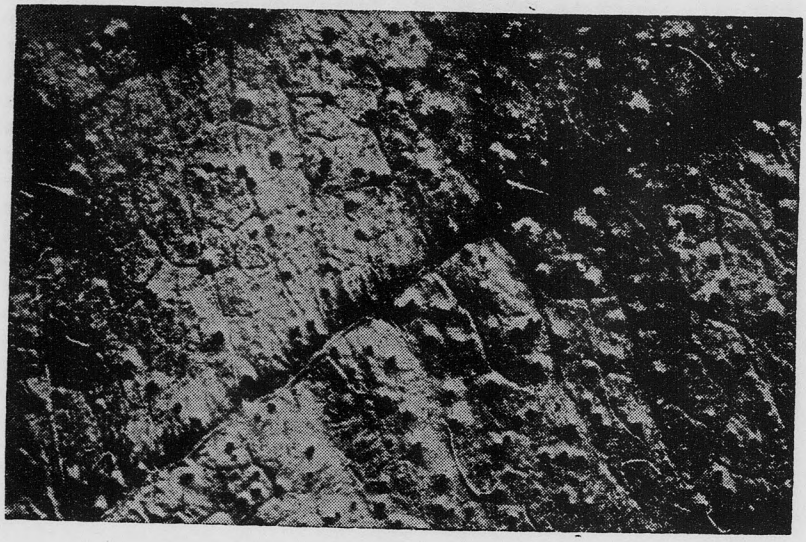
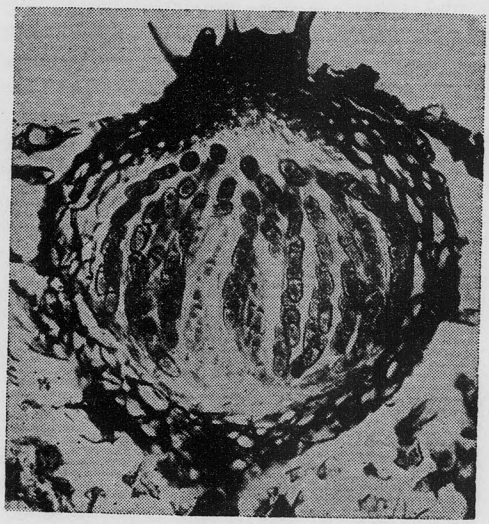


FIG. 1—Photo above—*Leaf surface magnified to show over-wintered fruiting bodies of the apple scab fungus. The small raised spots are the spore cases.*

Photo on right—*Is a section of a spore case showing the spores responsible for primary spring infections. These spores are liberated, once mature, during rainy weather.*



Photographs—Courtesy of Drs. G. W. Keitt and D. H. Palmiter.

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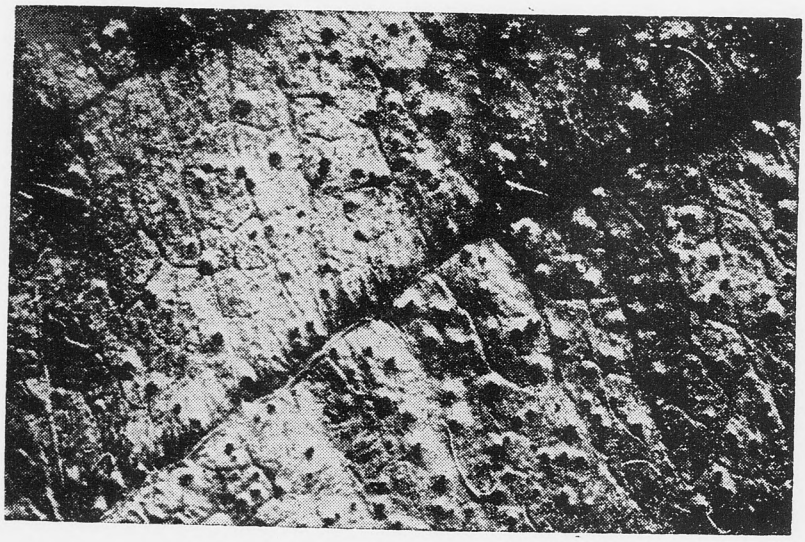

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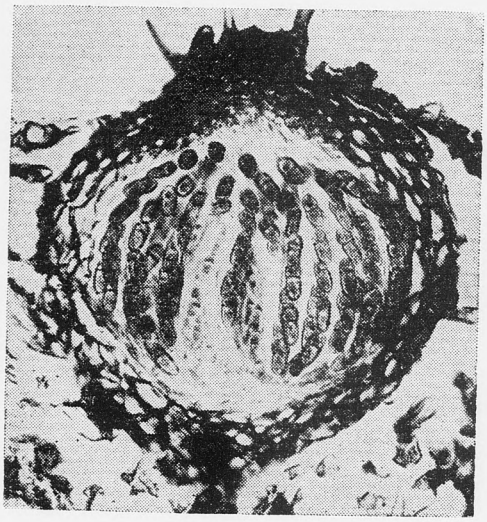


Photographs—Courtesy of Drs. G. W. Keitt and D. H. Palmiter.

good scab control by the complete destruction of fallen leaves have been observed where the trees involved were few and well isolated. In Delaware some growers have made a practice of plowing leaves under before new leaves appear in the spring and, as a rule, have found it an effective aid in their scab control program. The use of chemicals as eradicant fungicides applied to the leaves on the ground for scab control is not a new idea among scientists, but recent findings have been of such importance as to justify a revival of interest in this procedure. The most complete discussion and literature citation on the entire problem of scab control by the use of eradicant fungicides is given in a recent paper by Keitt and Palmiter (1 and 2).† The introduction of sodium dinitro ortho cresylate (Elgetol) as a commercially usable material by Keitt (3) in 1939 and of sodium nitrate plus calcium arsenite by Palmiter and Hamilton (4 and 5) in 1940 have resulted in widespread interest in ground spraying for apple scab control. In 1939 and 1940 experiments were conducted in several states in an effort to evaluate as quickly and as accurately as possible the commercial value of these sprays for scab control. To this end, several tests were conducted in Delaware by the Plant Pathology Department of the Delaware Agricultural Experiment Station with the cooperation of various growers.

Experimental Results

The Delaware tests involved a comparison of a 20 to 22.25 per cent sodium dinitro ortho cresylate (Elgetol—Standard Agricultural Chemical Co.) used at .50 per cent by volume; a 40 per cent sodium dinitro ortho cresylate (American Cyanamid Company product) used at .25 per cent by volume; and sodium nitrate 100 pounds plus calcium arsenite 4 pounds dissolved in water to make 100 gallons. In all instances the sprays were applied at from 500 to 600 gallons per acre.

In three of the five experimental orchards, the two dinitro sprays indicated above were compared to each other and to no ground sprays. In any one orchard, the sprays applied to the trees were the same for all treatments, except as indicated in Test No. 5.

Test No. 1—At Bridgeville a block of 15-year-old Red Delicious trees set 10 rows by 25 rows was selected for the test. The owner had been unable to control scab. A high percentage of the leaves on the ground contained perithecia of the scab fungus. The sprays were applied just prior to the breaking of the leaves. For the most part, ascospores were not mature when ground sprays were applied although about 5 per cent discharged when examined. This experiment was most interesting in that it showed clearly the importance of adequate summer fungicide sprays if scab is not prevented in early season applications. The grower applied all tree sprays in this study. They were poorly timed and very poor coverage was obtained.

†Number in parenthesis refers to reference number at end of paper.

Records were taken on May 16 and again on August 29, a few days prior to harvest. The results obtained were as follows:

Treatment		Per Cent on Leaves May 16	Per Cent on Fruit Aug. 29
Ground unsprayed	Trees not sprayed.....	58.0	100.0
	Trees sprayed	21.0	79.0
Ground sprayed with .50 per cent Elgetol — 600 gallons per acre	Trees not sprayed.....	4.1	67.0
	Trees sprayed	2.3	29.0
Ground sprayed with .25 per cent sodium dinitro ortho cresylate 600 gallons per acre (American Cyanamid Co.)	Trees not sprayed.....	4.3	64.0
	Trees sprayed	2.5	28.0

An examination of the data shows quite clearly that the ground sprays were of considerable value in reducing primary leaf infections. Had the advantage thus gained been coupled with well-timed Cover Sprays and good spray coverage, the harvested fruit would probably have been nearly free from scab in the ground spray plots. At the time leaf data was taken, the fruit was about one-half inch in diameter with very few infections evident.

Leaf data was not taken at harvest because a great many infected leaves had fallen.

Test No. 2—In another Bridgeville orchard, the same ground sprays were applied as in Test No. 1, except that 500 gallons per acre were used instead of 600 gallons and the grower made the application. This was also a Delicious orchard. The trees were 10 rows by 28 rows and were about 20 years old. This orchard differed from the other in that apple scab perithecia were very difficult to find. Unsprayed check trees were left in each of the two ground treatment areas, as well as the area with the ground unsprayed. At the time of the Second Cover Spray, there was no significant difference in the amount of primary infection on any of the unsprayed trees. All showed less than 5 per cent leaf infections. Because of timely and thorough spraying, the control was perfect in all sprayed plots. Even the trees which had not been sprayed until the Second Cover and which showed between 3 and 5 per cent primary leaf infections at that time had less than 3 per cent fruit infection at harvest.

Test No. 3—This test was run at Rising Sun, Delaware, in a block of 20-year old Red Delicious, 7 rows wide and 30 rows long.

Twelve trees on one end of the orchard were left without a ground spray. All others received the same ground spray at the rate of 500

gallons per acre. The spray, applied by the owner was .25 per cent by volume of a 40 per cent sodium dinitro ortho cresylate supplied by the American Cyanamid Company. Unlike all other orchards in our tests, this one had a commercial orchard to the west of it and a small 1-year old apple planting on the east, leaving seven rows of Delicious down the middle. Trouble because of ascospore drift was expected in this set-up and judging from the results obtained our expectations were fulfilled.

Unsprayed check trees were left in each of the two blocks. All others were well sprayed with five flotation sulfur applications. These were well-timed and thoroughly applied. The perithecia on last year's leaves were not numerous but there were plenty for a good infection. The results obtained were as follows:

Treatment of Ground	Treatment of Trees*	Per Cent Apple Scab	
		Fruit Sept. 3	Foliage June 4
No ground spray	Trees sprayed	3.2	.....
	No tree spray	100.0	97.0
.25 per cent sodium dinitro ortho cresylate 500 gallons per acre (American Cyanamid Co.)	Trees sprayed	0.1	.....
	No tree spray	47.1	71.0

*All trees were sprayed the same after Second Cover Spray.

Test No. 4—A block of Rome Beauties, Delicious, and Grimes, 12 rows wide and 30 rows long, located at Cheswold, Delaware, was selected for this study. The block had no apple trees within 500 feet. It was selected for this study because apple scab has been a serious problem in the block yearly. This is due to the fact that once the ground gets soaked, it takes a couple of weeks to dry out sufficiently to haul spray equipment through. As a result, the few sprays applied are very poorly timed and are rarely on when actually needed.

The ground treatments outlined in Test No. 1 were applied in this orchard at the rate of 600 gallons per acre by the grower.

Only three apple scab sprays were applied and these were put on before and after our real scab weather set in. From the second cover on, all blocks were sprayed quite regularly for codling moth control. Bordeaux was applied four times during summer at the rate of 2-5-100. In each block, two check trees were left unsprayed during the scab season. The results obtained were as follows: Our poorest results were obtained in this test.

Ground Treatment	Tree Treatment*	Per Cent Scab on Fruit
No ground spray	No tree spray	100
	Trees sprayed	89
.50 per cent Elgetol by volume, 600 gallons per acre.	No tree spray	78
	Trees sprayed	71
.25 per cent by volume of 40 per cent Sodium dinitro ortho-cresylate (American Cyanamid Co.) 600 gallons per acre.	No tree spray	79
	Trees sprayed	69

Test No. 5—This experiment involved the use of approximately 35 acres of orchard. Although there were several scattered varieties in the planting, records were taken only from Stayman. Perithecia were numerous on the leaves on the ground.

The sprays applied to both ground and trees during the scab season are listed in the following Table along with results obtained. The ground sprays were applied at about 500 gallons per acre. All tree sprays were applied by the grower with his equipment. The grower modified his spray technic to satisfy our needs and generally did a satisfactory job of spraying.

The 1940 Delaware Season

The 1940 growing season was evidently the most suitable for scab that has prevailed in Delaware for several years. The total rainfall was not excessive but the way and time of falling was ideal for heavy infection. The first scab rain was at the green tip stage on the 21st and 22nd of April, but at that time few ascospores were mature and as nearly as we could tell little if any infection took place. On May 3rd and 4th, just after the second pre-pink spray was applied, a light rain and drizzle fell for two days. Then after four days of cloudy weather, it started to rain and continued damp and wet through the 16th of May. The period as a whole may be regarded as ideal for apple scab. The rainfall from May 3 through the 16th was in excess of six inches.

During the bloom and calyx periods, a few days of excellent weather prevailed, but starting just after the calyx on the 24th of May another damp, rainy period which did not end until June 10th was ushered in. From then on the summer was generally dry and typical. Actual rainfall and temperatures are given for the Dover and Bridgeville areas in Fig. 2.

*Only three sulfur sprays applied during scab season. Four Bordeaux sprays (2-5-100) applied during codling moth program.

Ground Spray Plots and Results Obtained—1940

Plot	Ground Treatment		Fungicide Applied to Leaves on Trees** by the Grower					Results at Harvest		
								Per Cent Scab on Fruit		
	Material	Applied by	Late Delayed Dormant 4/23-25	Pre-Pink 5/1-2	Pink 5/6-7	Calyx 5/17-19	1st Cover 5/28-29	Light	Severe	Total
A	Elgetol .50%	Exp. Sta.	None	None	None	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	11.3	43.6	54.9
B	Elgetol .50%	Exp. Sta.	None	None	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	7.0	21.0	28.0
C	Elgetol .50%	Exp. Sta.	None	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	4.0	7.0	11.0
D	Sodium nitrate 100 lbs., monocalcium arsenite 4 lbs.	Exp. Sta.	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	4.0	6.0	10.0
E	Elgetol .50%	Exp. Sta.	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	4.0	6.0	10.0
F	Elgetol .50%	E. R. Dick	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	4.0	6.0	10.0
G	Elgetol .50%	Exp. Sta.	None	None	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	L3 and L5	7.0	28.0	35.0
Ck	Elgetol .50%	Exp. Sta.	None	None	None	L3 and L5	L3 and L5	12.0	61.0	73.0
Ck	No ground spray		Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 12	Flot. Sul. 10 L3 and L5	Flot. Sul. 10 L3 and L5	8.0	35.0	43.0
Ck*	No ground spray		None	None	None	L3 and L5	L3 and L5	5.0	95.0	100.0

*Plots located in adjacent part of orchard—to the northwest.
**Camden Coke Company's flotation sulfur paste used on trees.
L & L means lead and lime respectively.
All materials used are expressed as pounds per 100 gallons of water, except Elgetol which is used on per cent volume basis (gallons).
Summer cover sprays starting with Second Cover applied the same to all plots.

Discussion of Results

The results obtained this year in Delaware and in several other states show very clearly the possibilities and limitations of ground sprays for apple scab control. Most of the failures can be explained on the basis of improper experimental designs, however, some failed because of poor tree spraying. Out of the five tests conducted in Delaware, tests No. 1 and No. 4 gave unsatisfactory results because of poor or untimely spraying.

The outstanding result all over the country was the marked reduction of primary ascosporic infections. The reduction varied from 88 to 99 per cent. The practical significance of this fact is as follows: An orchard with a bad scab problem this year is almost certain to have a large carry over of scab on fallen leaves. If weather conditions are suitable for scab next spring, it will be very difficult to obtain good control with so much primary inoculum present. If most of this inoculum could be destroyed on the ground, scab control would be many times easier. This does not mean that any sprays can be safely omitted, but it does mean that if for any reason a spray is poorly timed, as is so often the case, the likelihood of getting into trouble because of poor timing is not nearly so great. An examination of the results given for test No. 5 indicates that in this test the ground spray was about equal to the first three scab sprays. Any such comparison, however, is unsafe since only one of the three sprays was an important scab application this year. At this time, the omission of any spray is not considered a wise practice.

Conclusions

Judging from studies conducted in Delaware and in other parts of the country, the following practical conclusions seem justified at this time.

1. Ground spraying, if properly done, will greatly reduce the primary inoculum of apple scab, and, accordingly, is justified as an extra scab control measure in cases where apple scab was not controlled satisfactorily the previous season.

2. Delaware results do not indicate a difference in value between the two sodium dinitro ortho cresylate sprays or the sodium nitrate plus calcium arsenite sprays used.

3. On the basis of scab control obtained, ground sprays are not expensive, although the application cost is fairly high.

4. Ground sprays are likely to fail unless followed with a well-timed, thoroughly applied sulfur spray schedule. However, if a ground spray is applied and tree spraying is inadequate, a grower with a scab problem has a vastly better chance of controlling it than if no ground spray is applied.

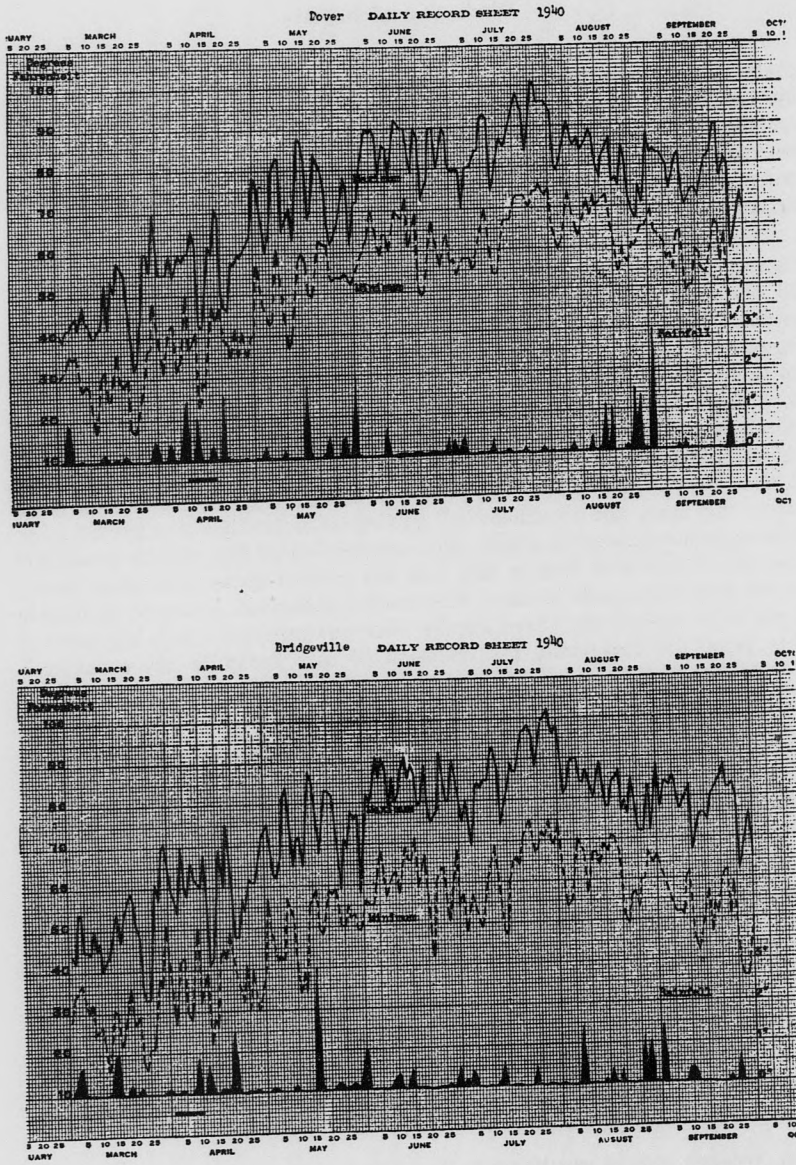


FIG. 2—*Daily records of temperature and rainfall for the vicinities of Dover and Bridgeville. The black line beneath rainfall indicates when ground sprays were applied in the area.*

5. Ground spraying is of no practical value to the grower with scab under control.

6. Ground spraying apparently permits the successful use of milder sulfur sprays than could otherwise be used successfully. In some cases, this may be the practical way to avoid spray injury from more caustic materials.

7. Because of ascospore drift, grower test plots should never be smaller than 1,000 feet square unless the area to be treated is completely removed from other orchards. If possible, such tests should be laid out with the aid of your county agent or plant pathologist.

Acknowledgments

The authors are grateful to the following growers for the use of orchards and for valuable assistance rendered during these studies: Mrs. Olivia Willum and T. S. Smith and Sons, Bridgeville; Frank Richardson, Rising Sun; W. L. Smith, Cheswold; and E. R. Dick, Smyrna.

References

(1) Keitt, G. W., and Palmiter, D. H. Eradicant fungicides in relation to apple scab control. Phytopathology 27: p. 133, 1937.

(2) ————————. Potentialities of eradicant fungicides for combatting apple scab and some other plant diseases. Jour. Agr. Res. 55: p. 397—, 1937.

(3) Keitt G. W. Toxicity of the sodium salt of dinitro-o-cresol to *Venturia inaequalis*. Science 1939.

(4) Palmiter, D. H., and Hamilton, J. M. Ground sprays as supplementary control for apple scab. Jan. issue *Farm Research*, 1940.

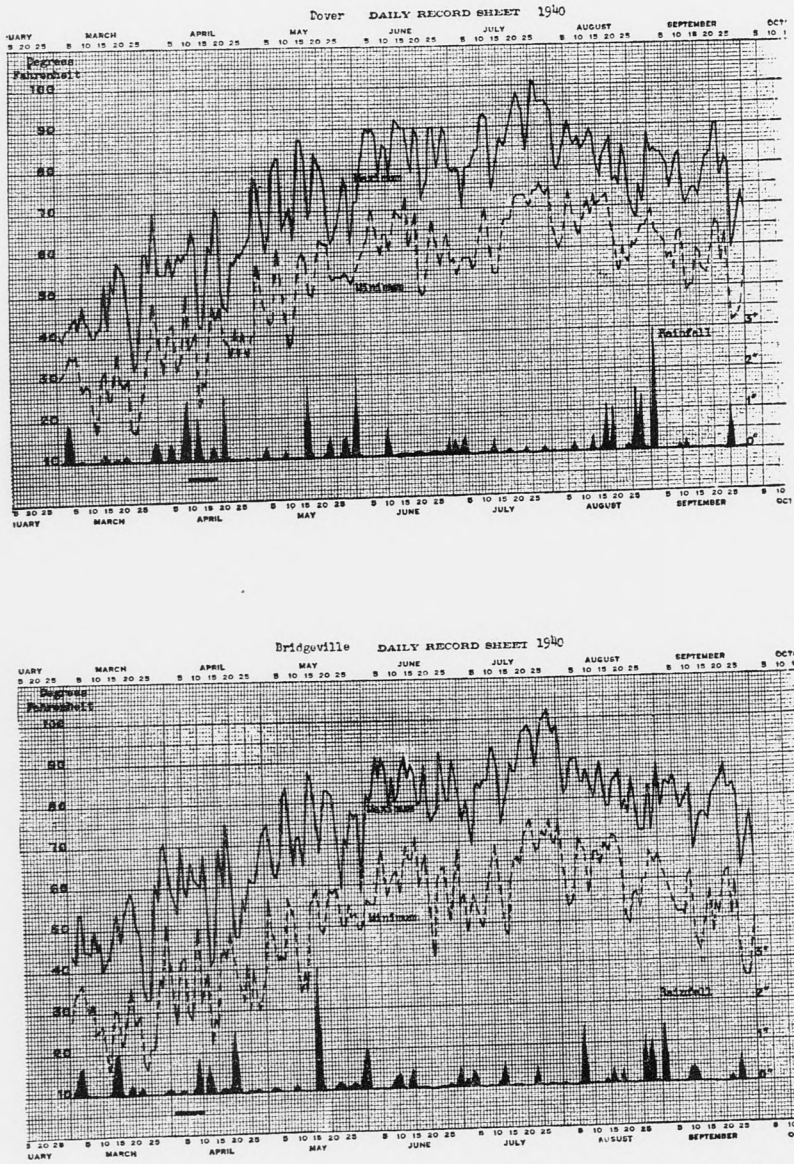
(5) ————————. Eradicant treatments to aid in the control of apple scab. Proc. N. Y. State Hort. Soc., 1940.

REDUCING SPRAY INJURY

H. W. Thurston, Jr., Associate Professor, Plant Pathology,
Pennsylvania State College, State College, Pennsylvania.

Three years ago I had the pleasure of talking to this society on the same general topic as that assigned me today. At that time I pointed out the fact that fungicides capable of producing a high degree of disease control are frequently found to produce foliage and fruit injuries as well. Since the fungous parasites that cause diseases, such as scab, are in reality small microscopic plants, it should not come as a surprise to us that a chemical which is able to kill the small plant is also able to produce injury to the tissues of the larger plant.

In formulating a spray schedule for a crop such as apples, the plant pathologist has given his attention first of all to disease control. The effort has been to find the material and the schedule and method of application that would result, as nearly as possible, in 100% control. While 100% control is rarely attained in experimental spraying and is



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In formulating a spray schedule for a crop such as apples, the plant pathologist has given his attention first of all to disease control. The effort has been to find the material and the schedule and method of application that would result, as nearly as possible, in 100% control. While 100% control is rarely attained in experimental spraying and is

still rarer in commercial orchard practice, as a plant pathologist, I believe that for some diseases we have reached this objective quite satisfactorily. In the case of apple scab, for example, lime sulphur, in the proper schedule, thoroughly applied with modern equipment, can be depended upon to control scab. In Pennsylvania our experimental spraying, as well as demonstrations in the hands of growers, have convinced us that with proper attention to timing and thoroughness, and no "slip-ups" we can keep scab down to two or three percent on picked fruit year after year.

In recent years, we have become increasingly aware of the fact that we were producing at the same time altogether too much injury. Both growers and experimenters in other states, as well as Pennsylvania, have been paying a lot of attention to spray injury and we hear a lot about safer sprays, milder sulphurs, insoluble or fixed coppers, safening agents of one kind or another that can be added to old formulae.

Before examining the merits of these, let us consider just what we mean by spray injury. This is a term that covers a multitude of sins. In general, however, I think there are three groups of injuries. First, injuries to the fruit, most commonly russetting, but including also the scorching or burning effect of some materials which may kill tissue deep in the flesh of the fruit. Second, leaf injuries, usually in the form of dead spots, margins or tips of leaves, but also including a general yellowing of the leaf, accompanied by leaf fall, and sometimes a stunting effect without much dead tissue or even discoloration. Third, a generalized effect on the tree itself which may have a tendency to cut down fruit bud formation and reduce yields.

The question is, how much of this sort of injury do we have to stand for in our efforts to get the upper hand of diseases and insects. Or, to put the question the other way around, if we choose a so-called safe material, how much do we sacrifice in the way of control, and are the "safe" materials really safe. All the evidence at hand points to the conclusion that we expect too much from any one fungicide if we expect it to be ideally effective and at the same time completely harmless to the tree under all conditions. If this sounds pessimistic, I hasten to add that I believe there is much hope to be found in a study of the effects of environment in bringing about injury following the application of certain fungicides and in the careful adjustment of materials and schedules to varieties and to localities and to local disease and insect problems.

The diagnosis of spray injury presents some interesting problems. It's like a headache—you have a headache but what causes it? Is it eye strain, are you overtired or hungry, or is it something you ate? Perhaps you are constipated, or perhaps your headache is a symptom of some more deep-seated trouble. Unless you or the doctor can determine the cause, how will you avoid more such headaches in the future? You show me a russetted apple or a scorched leaf, and I may not know what caused it; even if you tell me it was sprayed with certain materials,

I may not be sure which one of several ingredients in the spray was primarily responsible. Heat and cold, sulphur and copper can produce russet on apples. Sulphur, arsenic, copper, zinc as well as certain fungi, can produce spots on leaves that look a lot alike. It may not be enough to know what went on a tree. Experimentally, however, by spraying certain trees with one material and other trees with another material and still others with a combination of the two or with nothing at all, we are able to sort out the injuries and ascribe them to the various casual factors. After sorting them out, and after taking into account the effect of the weather and the variety, it should be possible to modify some of our older spray schedules so that we can expect less injury without too much of a sacrifice in disease control.

There are many factors that enter into the production of spray injury. Among them are temperature and humidity, tree vigor, variety, stage of development of leaves and fruit and, of course, the composition of the spray itself. All these are important, but the one most susceptible to control in the hands of the orchardist is the choice of material.

For some years we have been especially interested in comparing spray materials under average conditions with the definite objective in mind of reducing injury without too great a sacrifice of effectiveness. I have chosen some representative figures from among several hundred experimental plots that have passed under our observation during the last five or six years. Since liquid lime sulphur is one of our best fungicides, we have been concerned about the best way to use it, and the conditions under which it produces excessive injury.

Table 1.—*Effect of Dilution of Lime Sulphur on Stayman Fruit Russet.*

	L.S. 1-50	L.S.1-75	Check
1935	49.5	38.7	4.2
1936A	19.9	9.9	1.2
1936B	27.2	13.3	0.0
1937	0.5	0.3	0.0
1938	16.7	4.4	0.5

This table illustrates two points; first, the variation in amount of fruit injury from season to season and, second, a consistent reduction in the amount of fruit injury when the more dilute lime sulphur is used. 1935 was a season of late spring frost. 1936 a season with an unusual heat period in July, while 1937 and 1938 may be considered as approximately normal. In none of these years, however, was the weather alone responsible for any great amount of fruit injury, as may be seen from the unsprayed trees. However, any unusual weather acting in conjunction with the sulphur spray resulted in more severe injury than would be expected in a more normal season.

Table 2.—*Effect of Dilution of Lime Sulphur, Lead Arsenate on Leaf Injury and Scabby Fruit—Stayman,* 1937.

Dilution	% Leaf Injury	% Scabby Fruit
1-50	23.1	2.9
1-75	18.0	6.2
1-100	15.3	10.8
1-200	43.5	18.1
Check	6.8	86.0

Spray injuries are not confined to the fruit. Frequently, it is injury to the foliage that causes a grower to worry about his spray program. I have selected the data in Table 2 to illustrate two points. The first is the effect of dilution of lime sulphur on foliage injury. All these dilutions of lime sulphur contained a standard quantity of lead arsenate and the leaf injuries recorded here are due to the liberation of "free arsenic" from the mixture. It is of interest to note that dilution produces a safer mixture, if not carried too far, but that a dilution greater than 1-100 results in far more injury than that produced by a much stronger mixture. The second point illustrated by this Table is the effect of such dilutions upon control of scab. We have always found that the control of scab is better with the stronger formulae. This means that we are forced to choose, whether we will accept a slightly increased amount of scab for the sake of better foliage or whether we will control the scab and sacrifice some foliage.

At this point, some of you are asking why all the emphasis on lime sulphur when we have wettable sulphurs to fall back on. My answer is that we have not neglected the wettable sulphurs, but have been interested in finding out what are the exact limitations of lime sulphur since it is the material that we must depend upon, especially in the early part of the season, wherever scab is a major problem.

Table 3.—*Effect of Some Mild Schedules on Stayman*—1938.

PreBloom	Covers	% Russet	% Scab	% Leaf Injury
1-50 L.S.	1-75 L.S.	21.1	1.2	42.0
1-50 L.S.	No Covers	23.3	15.5	15.8
1-50 L.S.	Catalytic Sul.	7.2	1.0	40.1
Cat. Sul.	Catalytic Sul.	4.0	0.9	28.6
Check	Check	0.5	89.0	3.4

Table 3 is a comparison between lime sulphur and one of the milder sulphurs. This table shows some interesting facts. In 1938 this sulphur combination was effective in controlling scab. It was also effective in reducing both fruit russet and foliage injury. "Catalytic" sulphur as used here contains liquid lime sulphur 1-100 and four pounds of the

"catalytic" sulphur. When this material is used throughout the schedule, these 1938 results are typical of what the material has done for us over a period of six years. It contains enough lime sulphur to give good scab control, it has consistently produced better foliage than liquid lime sulphur alone, but, especially in hot seasons, it still produces more injury, particularly on the foliage, than we would like to see.

Recently we have been interested in what we have called a "three part" schedule. Such a schedule consisting of liquid lime sulphur before bloom, a wettable sulphur in petal fall and first cover and copper in the later summer sprays is illustrated in Table 4.

Table 4.—*Comparison of Some Mild Spray Schedules—Stayman* 1939.

Schedule Prebloom	Petal Fall 1st Cover	2nd, 3rd 4th	% Fruit Russet	Leaf Injury
L. S. 1-75	Mike S	Bord. 2-4-100	21.6	4.5
L. S. 1-75	Mike S	"ZO" 1½	7.0	21.6
L. S. 1-75	1-75	1-75	12.1	48.2
L. S. $MnSO_4$			7.6	43.

In Table 4 are compared two different "three part" schedules with two comparatively mild all sulphur schedules. In this table some additional facts are brought out. Bordeaux produced the best foliage while "ZO" and lime sulphur with manganese sulphate produced the least fruit russet. This latter spray may be called a homemade catalytic sulphur. The bordeaux cover spray here illustrates a fact that we have come to depend upon. It is the best spray we yet know of to reduce arsenical injury to the foliage. Of course, it cannot be used on varieties that are subject to copper injury, nor, for that matter, should any other copper be used on such varieties. Scab was easily and effectively controlled in 1939 on all these plots, so that no comparative scab figures are available.

Table 5 shows a further comparison of certain mild schedules during the season just passed. In 1940, as in 1939, scab was easily controlled in all these plots and comparative scab figures are meaningless. The injury data, however, are significant and bring out at least one point new to this discussion.

Table 5—*Comparison of Some Mild Spray Schedules—Stayman* 1940.

Prebloom	Petal Fall First Cover	2nd, 3rd, 4th Covers	% Leaves Injured
L. S. 1-50	L. S. 1-50	L. S. 1-75	51.4
L. S. 1-100	4# Catalytic	All sprays	46.6
L. S. 1-50	Mag. 70 Paste	Bord. 2-4-100	35.0
L. S. 1-50	Mag. 70 Paste	"ZO" 2-4-100	24.3

It should be noted that the schedules using copper in the late cover sprays again show the least foliage injury. The bordeaux plot, up until the last of August, showed the least injury, as in 1939. Abnormally heavy rainfall on August 30 resulted in a copper injury which overshadowed the arsenical injury and resulted in reversing the position of bordeaux and ZO as compared to 1939. The effect of the weather in combination with the materials used is again emphasized as in the case of sulphur injuries discussed earlier.

To summarize these findings: (1) It seems abundantly demonstrated that no spray can be considered safe under all conditions.

(2) That in a search for safety we must be cautious lest we sacrifice control.

(3) That all varieties do not respond alike to injurious factors, any more than all varieties are equally susceptible to scab infection.

(4) That the weather, as well as choice of materials, has a profound effect in bringing about spray injury.

(5) That in spite of the weather certain materials are safer than others. For example, the proper dilution of lime sulphur helps to reduce sulphur injury. Bordeaux cover sprays help to reduce arsenical injury, etc.

(6) That no standard recommendation can be made but that each grower must of necessity study his own problems and with experiment station results as a guide, work out his own salvation.

GROWERS' EXPERIENCES IN SPRAY INJURY CONTROL

E. W. Scott, Marvania Orchard and Rockville Fruit Farm,
Hancock, Maryland, and Rockville, Maryland.

Reducing spray injury and at the same time effectively controlling insects and diseases under adverse conditions remains an apple spray problem with me. I still use lime-sulphur solution with lead through the calyx spray, followed by the use of bordeaux with lead for the remaining sprays and get more or less injury, depending upon the season. Milder fungicides are safer, from a spray injury standpoint, but are not dependable. I shall gladly give up the use of lime-sulphur solution and bordeaux when a safer and just as effective fungicide is demonstrated to my satisfaction.

G. William Gardenour, Smithsburg, Maryland.

We have reduced lead arsenate injury on our peaches by use of zinc sulfate in all lead sprays. Before the use of zinc sulfate, we had a lot of injury to the trees. But with zinc sulfate, we have reduced it to practically zero. We use wettable sulfur beginning the first cover spray on apples and continue through with this material. We have better foliage and less tree injury.

STANLEY M. FULTON, Green Lane Orchard, Hancock, Maryland.

My observation teaches me there are several fundamentals, which, if practiced, will keep spray injury to a minimum. I discontinue lime-sulfur after the full-pink spray, changing to a wettable sulfur, avoiding the use of sulfur when temperatures are above 90 degrees. Also, I don't use copper or use it in very mild form on varieties that russet badly. After doing these things I just hope for good weather, for it has been definitely proven that weather has a great deal to do with the finish on a crop of apples.

C. E. BRYAN, Mt. Pleasant Orchards, Havre de Grace, Maryland.

I eliminate lime-sulfur from my spray schedule except for the pre-pink apple spray. It is also necessary, I think, to guard against injury due to rapid oxidation of heavy elemental sulfur applications by increasing the usual amount of lime to nearly double. Casein as a wetting agent gives a colloidal coating to each particle, seeming to inhibit formation of lead sulfide. I also use double the amount of lime in calcium arsenate-bordeaux sprays and also cut down on the amount of copper sulfate used in the bordeaux. These practices have practically eliminated spray injury, while giving excellent control.

S. B. WADDELL, Valley View Orchards, New Windsor, Maryland.

I can offer a few suggestions of what I do to control spray injury. Get the best bluestone you can buy. Dissolve it thoroughly and add it to the water when the tank is nearly full; then, add lime. I seldom use over 2 pounds of bluestone per 100 gallons. Never add lead arsenate until just before spraying is begun, out in the orchard. Get good lime, the best you can buy. I use wettable sulfur from second cover on until the fourth cover, when bordeaux is used. My program has been: liquid lime-sulfur, lead and lime in first cover spray, then wettable sulfur, a like amount of lime, and 4 pounds of lead arsenate in the second, third and fourth cover sprays. However, on Stark, McIntosh and Jonathan, I use 2 pounds bluestone, 8 pounds of lime and 4 pounds of lead arsenate in the fourth and fifth cover sprays. For blossom blight control, I use 3 pounds bluestone, 8 pounds lime per 100 gallons of water, applying it when bloom is wide open. Last year, I figured 98% control.

Adjournment.

REPORT

OF THE

THIRTY-FOURTH ANNUAL MEETING

OF THE

Maryland Crop Improvement Association

Baltimore, Maryland

January 15, 1941

AND OF THE

STATE CORN AND GRAIN SHOW

PROGRAM

MORNING

10:00—Call to order by L. A. Renshaw, President.

10:05—Appointment of Committees.

10:10—New Developments in Making and Feeding Silage, by Myron H. Berry. Discussion led by H. M. Carroll, County Agent, Harford County.

11:05—Importance of the Quality of Hay in Dairy Rations, by Dr. Charles A. Cary. Discussion led by H. R. Shoemaker, County Agent, Frederick County.

12:00—Recess for lunch.

AFTERNOON

1:00—Reducing Barley Failures in Maryland, by Dr. Russell G. Rothgeb.

1:30—Fertilizer Application Methods, by M. V. Bailey.

2:00—Results of Hybrid Field Corn Demonstration, by Albin O. Kuhn.

2:30—Business Meeting.

3:00—Adjournment.

NEW DEVELOPMENTS IN MAKING AND FEEDING GRASS SILAGE

By M. H. BERRY, Maryland Experiment Station.

During recent years many kinds of silage have come into use. Five to ten years ago the term "grass silage" was virtually a meaningless term on most farms. Today silage is made not only from corn and the sorghums but from any uncured hay crop—whether it be a grass such as timothy, a legume such as alfalfa, or a cereal such as oats. The term "grass silage" is used to apply to silage made from any green crop that is put into the silo.

For over fifty years the storing of corn as silage and use of corn silage in the dairy ration has been the common practice. The ensiling of other crops, such as the grasses, cereals and legumes has not been practiced to any extent in this country. The idea seemed to prevail that leguminous and grass crops were very likely to yield unpalatable, foul-smelling silage. The explanation usually given was that the legumes were higher in protein and lower in sugars than corn and, therefore, were more subject to bad fermentation. Instead of undergoing the desired type of fermentation, the silage spoiled or had such a rank, putrid smell that it was unpalatable to livestock.

In my discussion of this subject today I want first to very briefly discuss the principal methods of making grass silage and their advantages and disadvantages, and, secondly, to review the research which has been done and new developments which have taken place in making and feeding grass silage.

Ordinarily it takes ten to twenty years for a new method or procedure to be adopted by most farmers and dairymen after all the experimental work has been completed on the subject. This was not so with the making of grass silage. Before the methods of ensiling were perfected, machinery developed for handling the material and field operations worked out, many farmers were filling their silos with grass silage.

General Methods of Making Grass Silage

There are four general methods of making grass silage.

Molasses Method

In the United States more silage by far has been put up with molasses than with any other preserving material. The reason for this is that molasses is easy to apply, produces a silage of good color, odor, and taste, has been one of the cheapest preservatives to use and at the same time is a cheap source of additional nutrients. Cane molasses, or blackstrap, is most commonly used.

The amount of molasses to add depends on the nature of the crop. Legumes with their high protein content require more than the grasses. Amounts which have given general satisfaction are as follows:

For grass or cereals	40 lbs.	per ton green material
For mixed grasses and legumes	60 lbs.	" " " "
For legumes	80 lbs.	" " " "

The best quality of silage is made when the crop is cut at the bloom or just before the bloom stage for the grasses, alfalfa, and clover; and when the pods are well filled on the soybean plant and before any leaves are lost. Indications are that oats, and possibly other cereals, should be ensiled when the young grain is in the milk or early dough stage. In other words, these crops should be cut for silage at the same stages as they would be cut for good quality hay. Crops cut at these ideal stages and ensiled at once, or with a limited amount of wilting so that there is 60 to 70 per cent of moisture in the ensiled material, should make a high quality silage.

Phosphoric Acid Method

When properly made, silage preserved with phosphoric acid is as valuable as is any other silage. Phosphoric acid may be used with all legume and grass crops that are suitable for the same type of silage as preserved with molasses. Details of harvesting and filling are the same as for molasses silage, except that a much smaller amount of phosphoric acid is required. The amount recommended is sixteen pounds to the ton of green material. This method of ensiling crops is relatively new and needs study, together with some long-time feeding experiments, to determine the effects of feeding this type of silage. It is recommended that at least an ounce of ground limestone be added daily to the rations of animals that are being fed silage made by this method.

A. I. V. Method

This is a patented process that has never become popular in this country. The method calls for the addition of considerable quantities of hydrochloric and sulphuric acids diluted with water. The method is used with success in Europe but under very different conditions than making silage in this country. The method is costly, the acids are inconvenient to apply and they are destructive to the silo. Furthermore, ground limestone or some form of lime must be fed with the silage in order to neutralize the acids.

Partial Drying Method

It has long been known that a good grade of silage can be made from legumes, or a mixture of legumes and cereals or grasses, without the addition of a preservative. This has been proven by work done at the Ohio Agricultural Experiment Station and at the United States Department of Agriculture Station at Beltsville, Maryland. The general conclusion from the work at these two stations is that the exclusion of air is the only condition required to prevent molding or rotting of the silage. It has repeatedly been shown experimentally that the quality of the silage made by this method is greatly improved by partial drying so that the material will not contain over 70 per cent moisture. However, the dry matter content must not be so high that the material fails to pack well. The drier the material the more difficult it is to pack to exclude

the air. It is difficult at any time to judge accurately the moisture content of forage, whether it is green, dry or partly dry. Because the range of dry matter content for the successful making of untreated silage is probably smaller than in the case of molasses or the phosphoric acid methods, and no simple, rapid means of dry matter determination is available to the farmer, a preservative has been generally recommended in making grass silage.

Investigational Work With Grass Silage

Investigational work with grass silage is being carried on at the different Agricultural Experiment Stations along various lines. The chief lines of interest appear to be: First, studies dealing with improved methods of ensiling to conserve the nutrients of the crop; second, attempts to increase the food value of milk by the use of grass silages of high nutritive value; and, third, comparative cost studies in making these different kinds of silage and their relative feeding value.

The large losses of nutrients in ordinary hay making, especially under unfavorable weather conditions, have been recognized for a long time and have stimulated the making of grass silage as a possible more efficient means of preserving these nutrients. Under unfavorable haying conditions the loss of nutrients may be as high as 25 to 50 per cent and in some cases a total loss. In the ensiling of grass or hay crops the loss of nutrients in the silo has been shown to be on the average, not over 10 per cent.

One of the greatest advantages of converting a crop into grass silage is the preservation of its carotene content. Although grasses and legumes are high in carotene when cut at the proper stage of development, the resulting field-cured hay may be extremely variable in this respect. It has been reported that there was as much as a 75 per cent loss of vitamin A, or carotene, when alfalfa was left in the field over night. In view of the great losses of carotene during the curing process of roughages under ordinary methods and conditions and the loss in storage, the silo appears to be one possible method of solving this problem. Experimental results to date show that the carotene content of grass silage may be just as high as in the fresh grass.

As more definite knowledge is accumulated regarding the importance and the quantity of vitamin A required by our animals, the feeding of grass silage may become a very important part of a feeding program. To date, however, it has been shown that under average farm conditions, except in extreme cases, our animals receive a sufficient amount of vitamin A for normal reproductive processes and growth.

The Vitamin A Content of Milk

The relation of carotene in the roughage to the vitamin A content of milk is of interest from the standpoint of human welfare because milk is the principal source of this factor in the human diet. The relationship

of carotene in the ration to the vitamin A potency of milk has been investigated by various workers. In most instances the results of these investigators indicate that the vitamin A potency of the milk is of the same order as the carotene content of the roughage fed. Much interest in this phase of grass silage feeding is being taken by dairymen who are interested in maintaining the yellow color in milk during the winter months. This should be of interest to many Maryland dairymen producing special grades of market milk.

Grass and legume silages have been made and fed successfully on a great many farms and at a number of the experiment stations. While much valuable investigational work has been carried on, much more work yet remains to be done. Many of the silage investigations have been conducted either in small experimental silos or containers or in very large silos. In both cases the results secured may not be representative of conditions in the average farm silo of between 50 to 100 ton capacity.

Very limited figures are available showing the relative cost of hay crop silages as compared with the cost of silage made from corn. Although costs on individual farms will vary, a farmer must know the relative yields and costs of producing these different silages in order to determine the best crop and feeding program for his farm.

Additional data is needed to determine the comparative feeding value between grass silage and corn silage and between grass silage and hay. In the limited feeding experiments conducted to date the general indications are that when the different silages are compared on a dry matter basis there is very little difference in their feeding value.

Another grass silage problem that needs further study is the damage to the silo caused by the ensiling of crops with acid. Investigational work is being carried on at several experiment stations to find ways to effectively seal the interior to prevent leakage and to protect the concrete. To date a satisfactory coating has not been located. Some varnishes, asphalt and coal tar preparations show promise of giving some satisfaction.

Work at the Maryland Station

For several years various green crops have been successfully ensiled by the molasses method at the Maryland Experiment Station. Rye, soybeans, and combination of rye and vetch, wheat and vetch, soybeans and sudan grass and soybeans and millet have been tried.

Last winter a feeding experiment was conducted to determine the feeding value of soybean-millet molasses silage as compared with corn silage for milk production. Two groups of ten cows each were fed according to the double reversal system of feeding for three seven-weeks periods. A well-balanced grain mixture was fed at the rate of one pound for each three pounds of four per cent fat-corrected milk produced. Hay and silage were fed in accordance with the live weights of the cows.

It is planned to repeat the experiment this year before drawing any

definite conclusions. The results obtained in the first trial show a slight increase in production of milk and butterfat for the cows fed corn silage. In addition, the cows on corn silage maintained their weight at a slightly higher level. Judging from the difference in amount of silage refused by the cows, the corn silage was much more palatable than the soybean-millet molasses silage.

In the feeding trial to be conducted this winter the milk from the corn silage fed group will be compared for carotene or vitamin A content with the milk produced by the soybean-millet silage fed cows.

Is There a Place for Grass Silage?

A question which naturally arises is, "Why make grass silage anyhow, since corn is so well adapted as a silage crop in Maryland?" In answering this question the farmer must determine how the growing of these crops for silage will fit into his crop rotation, to what extent grass silage can be used to replace hay and corn silage in his feeding program, or can be used as a pasture supplement.

In a soil conservation program grass silage crops have an important place. This is an individual farm problem and what might prove to be a sound program for one farm might prove unsound for another.

On farms where the yields of corn for silage are satisfactory the argument is in favor of its continued use. A good crop of corn will yield more total digestible nutrients per acre than any other crop.

As a supplement to short pastures in the summer, grass silage has an important place in the feeding program. Grass silage for this purpose can be made from an early crop which can be followed by some other crop, or the silage can be made during unfavorable weather conditions when it would be difficult or impossible to make quality hay.

It is doubtful from the experimental evidence at hand whether it will ever be advisable to replace all of the hay in the feeding program with grass silage. A certain amount of hay is needed.

To summarize, we may say that grass silage of good quality may be prepared by any of the four methods mentioned. The feeding value, as measured by milk production, of grass silage made by any of these methods will not be greatly different on a dry matter basis, from that of a corresponding grade of hay made from the same crop. The ensiling of a hay crop in unfavorable weather avoids not only the loss of many of the nutrients but preserves vitamin A that may be needed especially in winter rations of farm animals. The feeding of grass silage appears to be a satisfactory way of producing milk of high vitamin A potency during the winter months. As a supplement to short summer pastures, grass silage fits very well into a feeding program. The high feeding value of corn silage and its higher yield of total digestible nutrients per acre than any other crop favor the continued use of this crop for silage. Wherever corn can be grown successfully, grasses and legumes will probably never completely replace corn for silage.

THE QUALITY OF HAY IN DAIRY RATIONS

By C. A. CARY, Division of Nutrition and Physiology,
Bureau of Dairy Industry, U. S. Department of Agriculture.

Calcium and phosphorus, as you know, are the main mineral constituents of bones and they are abundant in milk, which supplies these elements to the growing animal during the period of most rapid bone formation.

About 20 years ago many investigators in dairy nutrition were worried about the feeding of calcium and phosphorus to dairy cattle. Forbes and co-workers at Ohio, Hart et al. at Wisconsin, and others, had found that high-producing cows early in lactation were frequently losing these elements from their bones. Sometimes these losses continued far along in lactation. Meigs at Beltsville had carried out an experiment with dry, pregnant cows, in which he found them laying on these elements in amounts hardly sufficient to cover the requirements for the calves that they were carrying. He also calculated, from the data at hand, that some of the cows in some of the experiments reported in the literature must have lost 25 percent of the calcium and phosphorus in their bones.

At Wisconsin and at Beltsville it was shown that losses of calcium and phosphorus were greater on poor-quality alfalfa hays than on good alfalfa and that the same was true with the timothy hays; and that they were greater on grass hays that were low in calcium than on legume hays. At about the time that these results were appearing, Green, who was then in this country, described the conditions due to phosphorus deficiency that he, along with Theiler and others, had observed in South Africa—chewing of bones, infections derived from these bones, stunted growth, low milk yields, etc. These conditions had not been observed in this country with cows on the diets on which the losses of calcium and phosphorus had been reported in the experiments referred to above. This was puzzling. What was the explanation of these discrepancies; and how could cows in this country go on losing calcium from their bones as these balance experiments indicated?

We now know, thanks to long-time balance experiments by Forbes et al. at Pennsylvania, to balance experiments and slaughter tests by Ellenberger at Vermont and by Meigs et al. at Beltsville, to studies by Huffman et al. at Michigan and as a result of work on animals other than dairy cows, (1) that balance experiments on calcium and phosphorus may not always tell the truth, either as to what is going on in the cow during the experiment, or as to what cows may be doing in practice on the same rations; (2) that it really is a very normal thing—and probably a very general thing—for mammals to store calcium and phosphorus in their bones during pregnancy to put into their milk during lactation, and that the loss of calcium and phosphorus by mammals early in lactation may be a perfectly normal physiological process and of no consequence; (3) that on diets low in calcium, this element is ordinarily in practice much more efficiently used than the results of

balance experiments would indicate—instead of less than 20 percent, twice this percentage of the calcium in the diet or even more than that may be used; (4) that if a ration contains a good grain mixture in considerable amount and good quality alfalfa hay—or even timothy hay —the ration is unlikely to be deficient in either calcium or phosphorus.

At Minnesota no untoward effects were noted as a result of feeding a ration containing as low as 0.18 percent of calcium for years, although 0.12 percent may have been too low.

Converse at Beltsville has for several years bought timothy hay as poor in calcium as he could obtain on the market in this vicinity, average .3 percent. He has used this hay in rations in which the total calcium was 0.2 to 0.25 percent. Growth was as good on the ration without any calcium supplement as it was with bonemeal added. The same experiment with milking cows is incomplete; some of the cows have gone several lactation periods on this low-calcium ration; no untoward effects have yet been noted.

Mitchell of the University of Illinois calculates that a ration, for a Holstein-Friesian cow giving 40 pounds milk, should contain at least .27 percent calcium and about this same percentage of phosphorus (Mitchell, Bulletin of National Research Council No. 99, page 134). With beef steers these percentages, according to Mitchell (page 130), should be calcium about 0.15 percent, and phosphorus about .2 percent. These requirements, prescribed by Mitchell for dairy cattle, would be readily met by ordinary grain and hay rations. It would seem that calcium deficiencies would certainly be quite rare in any dairy ration; but, where large amounts of roughage are fed and the proportion of grain is low, or where roughages are fed exclusively, the phosphorus may be very low in the ration.

Where these roughages are grown on soils that are low in their content of available phosphorus, the feed may contain too little phosphorus, and the cattle may suffer from phosphorus deficiency. This condition has been reported in some 15 to 18 States in this country, either generally in portions of these States, or at certain seasons of the year. Theiler et al. say that the deficiency may be fatal with an "adolescent" bovine fed 9 gms. or less of phosphorus daily, and 13 or 14 gms. daily when fed to a heifer just wards off aphosphorosis and permits normal pregnancy.

You ask, "What is the condition in Maryland?" Are the roughages grown here so low in phosphorus that, if fed exclusively or at a very high level in the diet, the cows may suffer from phosphorus deficiency? About 2 years ago, when the 1939 Yearbook of Agriculture was in preparation, your State Experiment Station was asked about this matter. Their reply was in part as follows:

"Our deficiency tests indicate that much of the Coastal Plain soils may be deficient in both calcium and magnesium unless liming with the proper kind of lime has been done consistently within the last few

years. The available phosphorus content of the majority of all Maryland soils is low. In many cases, it is so low that the forage probably does not contain sufficient amounts of phosphorus for the best growth of animals.

"I do not look upon this as a serious affair as far as Maryland is concerned. Most of it can be easily corrected by the persistent use of the proper kinds and amounts of fertilizing materials. . . ."

This fertilization recommended by your station also will increase the yield of feed and its protein content.

It must be borne in mind here also that most of the low calcium timothy hays used by Converse at Beltsville in the work referred to above were grown in Maryland.

Vitamin A

In the course of the feeding experiments in the mineral work at Beltsville, Meigs and Converse fed rations consisting of grain and either alfalfa, U. S. Grades 1 or 3, or timothy hay, U. S. Grades 1 or 3. The hays made up about one-half the ration. The cows received no pasture. I have summed up the results as far as the mineral work is concerned, but one other result was important.

The cows on rations containing the poorer quality hays—either alfalfa or timothy—and that had never had pasture or had not had pasture for at least 5 or 6 months prior to calving, gave birth to abnormal calves. The calves were born dead or blind or so weak that they died shortly after they were born. This was a surprise to us at that time and puzzled us very much at first. Converse was conducting the experiment and he tried in a variety of ways to save some of these weak calves. To one calf he gave a fairly large dose of cod-liver oil shortly after birth and it recovered and lived.

We soon found that where cod-liver oil was given to the cows for some time prior to calving we got normal calves. This meant that the abnormal calvings were due to the diet, and most likely due to a deficiency of either vitamin A or D. Carrots were then fed to some of the cows for some time prior to calving. Carrots are rich in carotene, the precursor of vitamin A, but contain practically no vitamin D. The cows that received carrots had normal calves. There was no doubt, therefore, that the abnormal calves that we were getting with these rations containing poor-quality hays, was due to a deficiency of vitamin A.

There is, of course, really no vitamin A itself ordinarily in cow rations. There is a yellow pigment called carotene, which the cow converts into vitamin A. This yellow pigment occurs in the various roughages. Ninety or 95 percent of a cow's vitamin A requirements are obtained from the carotene in the roughages in her diet. The following table (table 1), gives the carotene content of the various grades of market hays.

Table 1.—Carotene Content of Cattle Feeds.

	Carotene content (mgs. per pk.)			
	Dry Weight		Weight as Fed	
	Range	Average	Range	Average
Green growing material:				
Bluegrass	424-662	567	——	——
Alfalfa	271-412	332	——	——
Artificially dried material[1]*:*				
Grass (Watson, etc.)	266-479	359	——	——
Alfalfa leaf meal	——	——	76-244	151
Silages:				
Grass, AIV (Watson, etc.)	381-522	427	——	——
Alfalfa, AIV	(Nearly same as fresh material)			
Corn	4-156	50	1-40	14
Alfalfa hay:				
U. S. No. 1 in color	——	——	19-121	44
U. S. No. 2 in color	——	——	12-19	15
U. S. No. 3 in color	——	——	1-11	4
Timothy hay:				
U. S. No. 1 in color	——	——	8-36[2]	21
U. S. No. 2 in color	——	——	8-11	9
U. S. No. 3 in color	——	——	1-11	5
Carrots, garden, yellow:	268-1692	914	36-132	91

[1]Not much loss of carotene in artificial drying.
[2]One, apparently exceptional sample, of U. S. No. 1 timothy hay contained 8 mgs.

The records of our experiments show that whether or not we got normal calves with the above rations depended largely on the carotene content of the hays we used. Normal calves were obtained when the cows received hays containing 16 mgs. or more of carotene per kilogram.

No normal calves were dropped on rations containing U. S. No. 3 alfalfa or timothy hay—i.e. on hays containing 11 mgs. or less of carotene per kilogram.

The following table (table 2), gives the total amount of carotene fed to cows daily for at least 90 days before they calved, and the condition of the calf when born. This is taken from Converse and Meigs at Beltsville.

Table 2

Cow No.	Breed	Approximate Dry Period Months	Hay		Daily Intake			Condition of Calf
			Kind	Carotene mgs./kg.	Hay kg.	Carotene mg.	Carotene v/kg.	
n415	J	11	Clover	23.1	5.7	132	250	Normal heifer.
n411	J	2.6	Timothy	21.0	5.2	116	252	Normal heifer.
n229	H	7	Timothy	17.8	6.0	107	191	Strong bull calf.
n436	J	1st calf	Timothy	18.2	5.5	100	260	Strong bull calf.
n310	G.J.	4	Timothy	19.8	4.8	95	202	Strong heifer calf.
n415	J	10.5	Clover	18.0	5.0	90	161	Normal—died with infectious scours.
n435	J	1st calf	Clover	17.9	4.8	86	195	Normal heifer.
n437	J	" "	Clover	19.4	4.3	83	224	Slightly weak, died infectious scours.
n406	J	6	Timothy	20.5	4.0	82	178	Slightly weak heifer, survived.
n437	J	4	Clover	29.5	2.3	69	147	Calf very weak, died at 19 days.
n439	J	1st calf	Clover	14.9	4.3	64	182	Normal bull calf.
n119	G.H.	" "	Timothy	15.2	4.1	62	109	Normal bull calf.
n438	J	" "	Timothy	14.4	4.3	62	183	Weak bull calf, stood on third day.
n247	H	" "	Timothy	14.7	4.2	62	109	Normal bull calf.
n310	G.J.	3	Timothy	17.0	3.6	61	121	Slightly weak bull calf, survived.
n415	J	3	Clover	15.6	3.9	61	108	Normal bull calf.
n427	J	11	Alfalfa	12.4	4.8	60	118	Weak bull calf, died at four days.
n310	G.J.	3.5	Timothy	9.6	5.9	57	142	Calf breathed, but died at once.
n438	J	2.5	Timothy	13.4	4.3	57	134	Weak heifer, slightly deformed. died 6 days.
n439	J	3.5	Clover	18.7	3.1	57	132	Somewhat weak heifer, stood after 4½ hrs.
n436	J	3	Timothy	13.2	4.1	54	110	Weak heifer, stood next day, died 11 days.
n310	G.J.	1st calf	Timothy	14.3	3.7	53	156	Strong heifer calf[1].
n434	J	3	Timothy	12.7	4.1	53	129	Slightly weak, survived.
n415	J	4.5	Clover	11.0	4.6	51	104	Normal bull calf.
n442	J	1st calf	Timothy	13.6	3.8	51	138	Calf weak, stood 2nd day, survived.
n434	J	" "	Timothy	10.7	4.7	50	140	Female born dead.
n250	H	" "	Timothy	12.2	4.0	49	89	Weak bull could not stand first day, survived.
n416	J	3	Clover	11.0	2.8	31	70	Very weak. cod-liver oil therapy, survived.

[1]Cow n310 had fall and winter pasture until about 6½ months before calving.

You will note that all 7 cows in this table that received 86 mgs. or more of carotene daily dropped calves that were normal at birth. Cows that received less than 86 mgs. of carotene dropped a total of 21 calves. The mother of one of these had pasture 6½ months previously. Her calf was normal. Fifteen of the remaining 20, or 75 percent, were abnormal at birth. They were unusually weak or dead when born, about half of them dying shortly after birth. In order to obtain normal calves, it is probably best to feed not less than 100 mgs. of carotene daily for 90 days before calving.

The question might arise as to whether corn silage could be used instead of hay to supply the vitamin A requirements for production of normal calves. We have taken samples of corn silage daily since March 1, 1937, and analyzed monthly composites for carotene. Twenty-seven of these composite samples of silage that was kept in concrete silos contained on an average 12.6 mgs. of carotene per kilogram (2.2 pounds) of the silage as fed; but the variation was very large from month to month and in the average carotene content from year to year (see table 3). The data in table 4 indicate that there is very little loss of carotene during the storage of corn silage in such a silo; and the results in table 5 show clearly that the carotene contents of the corn plant at cutting and of the silage made from it depend largely upon the stage of development and greenness of the plant at that time.

Table 3.—*Carotene content, in mgs./kg. wet weight, of corn silage made from corn cut when kernels slightly dented and before they were fully dented and hard.*

Month used	Samples used in 1937		Samples used in 1937-8		Samples used in 1938-9		Samples used in 1939-40	
	Preserved	Carotene	Preserved	Carotene	Preserved	Carotene	Preserved	Carotene
Oct.	.....	.....	1937	11.1	1937–8[4]	8.3	1938–9	10.4
Nov.	.....	.....	1937	13.1	1938[5]	9.2	1939	13.1
Dec.	.....	.....	1937	17.1	1938	14.7	1939	7.1
Jan.	.....	.....	1937	18.8	1938	18.1	1939	10.2
Feb.	.....	.....	1937[3]	12.5	1938	16.2	1939	5.2
Mar.	1936	6	1937[3]	13.1	1938	14.3	1939	14.2
Apr.	1936	7	1937[3]	12.6	1937–8[6]	16.8	1939	10.2
May	1936	7	1937	20.8	1937[6]	15.1	.....	.....
June	1936	5	1937	21.8	1937[6]	14.2	.....	.....
July	1936	4	1937	22.4	1937[6]	12.2	.....	.....
Aug.	1935	18.7[2]	1937	15.5	1937–8[6]	10.2	.....	.....
Sept.	1935	17.1[2]	1937	21.7	1938	8.1	.....	.....
Av.[1]	.....	5.8	.....	18.0	.....	13.4	.....	10.0

[1]Averages include only data for corn silage kept in concrete silos, and used within 1 year of time put up. The average of all 27 monthly composite samples kept in this way = 12.6 mgs./kg. wet wt. (range for monthly composites was 4 to 22.4 mgs./kg. wet wt.).

[2/3/4/6]Not in averages.

[5]For 26 days; included in averages.

Table 4.—*Changes in plant pigments during the storage of corn silage.*

Samples	Corn plant mg./kg. dry wt.			Silage, mg./kg. dry wt.			Silage/green corn x 100		
	Willstätter and Stoll separation	Willstätter and Stoll separation & absorption		Willstätter and Stoll separation	Willstätter and Stoll separation & absorption		Willstätter and Stoll separation	Willstätter and Stoll separation & absorption	
	Carotene	Carotene fraction	Pigmented impurity[1]	Carotene	Carotene fraction	Pigmented impurity[1]	Carotene	Carotene fraction	Pigmented impurity
Silage stored 2 to 10.5 mos. (7 samples)	65.6	56.7	5.4	73.1	52.7	18.0	113.7	96	333
Silage stored 19 to 22 mos. (3 samples)	57.2[2]	47.7[2]	4.0	81.0	53.2	23.0	142	112	575
Average of all samples	62.8	53.7	4.9	75.9	52.9	19.7	121	99	402

[1]The biological activity of this pigmented impurity from corn silage has never been tested. That from alfalfa hay has been shown to be biologically inactive (unpublished data).
[2]Duplicates with one sample did not agree well.

Table 5.—*Relation between the carotene content of corn silage and the maturity and carotene content of the corn from which it was made (previously reported).*

Silage sample number	Date of analysis of silage	Condition of corn plant at cutting		Carotene content per kg. (dry wt. basis)		
		State of maturity	Greenness	Corn plant	Silage
			Mgs.	Mgs.	%
10	1- 5-35	Ears 100% in milk, undented	100	115	146
11	3- 4-35	Ears 100% in milk, undented	90	92	156
12	3- 9-35	Ears 100% in milk, undented	90	94	111
	Average			100	138
13	3-16-35	Ears 50% in milk, 50% in dough	90	70	103
14	3-21-35	Ears 50% in milk, 50% in dough	90	90	122
16	9- 5-35	Some milk, but average ear slightly dented	75	74	98
	Average			78	107
15	3-25-35	Ears dented	40-50	21	35
17	9-20-35	Ears dented	40	25	29
	Average			23	32
9	11-17-34	Ears dented, plant exposed to light frost	20	6	4

Table 6.—*Calvings of cows on a ration of grain and corn silage. Cows fed silage ad lib.*[1]

Cow No.	Carotene intake, mgs. daily for 90 days before calving.	Condition of calf when born
N-309	82.5	Calved 8-23-37, died 8-25-37.
N-106	112.0	Calved 4-25-38, normal.
N-309	83.9	Calved 12-4-38, very slightly weak, stood at 14 hrs., died 12-6-38 (mother found lying on it).
N-106	100.8	Calved 4-30-40, normal.
N-309	135	Calved 1-3-41, normal.

[1]Taken by permission from unpublished data of Meigs and Converse. The results do not permit any conclusion, but do agree, as to the carotene required for normal calving, with those reported by Meigs and Converse where hays were used as only source of vitamin A.

It must be concluded, therefore, that corn silage may or may not supply enough carotene for normal calving and that whether or not it does depends entirely upon the carotene content of the corn when cut, its greenness, stage of maturity, etc. (See table 6).

After we found that feeding poor-quality hays led to the production of abnormal calves because of a deficiency of vitamin A, the question arose as to what would happen to a normal calf if it was fed the milk from one of these cows. At that time, our calves were fed whole milk for 3 or 4 weeks and were gradually changed to skimmed milk, which was continued to 6 months of age. The calves also had access to hay and grain from the time they would take these feeds. This is a very usual farm practice. The question was, "Would calves getting milk from cows fed grain and a poor-quality hay develop normally on such a feeding regime?" The question was soon settled. If the hay offered to the calves was the same poor hay (alfalfa or timothy) that was fed to the mothers, all of the calves died within 90 days of symptoms resembling those of pneumonia. With better quality hays—hays richer in carotene—the calves grew better; but, even with the best hay and this type of milk, optimum growth was not attained unless additional vitamin A—either as cod-liver oil or as carotene in oil—was fed as a supplement to these rations. It was found also that even with the poorest hay the calves did not die but attained good growth, when adequate amounts of cod-liver oil or carotene were supplied to them.

When these results were obtained, the question arose as to whether, if adequate amounts of vitamin A were supplied to a young calf, it would be necessary to feed it whole milk at all. This has been definitely settled. If calves are allowed to suckle their mothers for 72 hours after birth,

to get the colostrum, they may be raised thereafter without giving them any more whole milk if they are given skim milk, are allowed access to grain and hay, and are given some supplement to supply their requirements of vitamin A. This vitamin A supplement may be either carrots or cod-liver oil (10 ml. or 20 ml. daily).

At 6 months of age, then what? If the hay being fed is of good quality, the feeding of the vitamin A supplement may then be discontinued; if it is poor quality—like U. S. No. 3 alfalfa or timothy—the feeding of the vitamin A supplement must be continued, not only for normal growth and health of the calves, but also to obtain normal calves from the heifers later.

We have now had 28 calvings in our herd at Beltsville on rations containing these poor-quality hays supplemented with the 10 or 20 ml. of cod-liver oil daily. In over 70 percent of these calvings, the calves have been normal, and this is pretty close to a normal record. In every one of these calvings the calf would have been abnormal if the mother had not received the vitamin A supplement. So far every pregnancy, where this supplement has been only 10 ml. of cod-liver oil, has been normal. We think, however, that it is safer to feed 20 ml. daily because of the variation in the A potency of the cod-liver oil on the market.

Now, how about the milk yield of these animals on poor-quality hays supplemented with vitamin A? It has been very satisfactory. One cow, with the 10 ml. of cod-liver oil supplement, for instance, gave 18,193 pounds of milk and 642 pounds of fat in her first lactation; and she is now in her second lactation and is doing very well.

The calves of these animals reared on skim milk, poor-quality hay and cod-liver oil, are themselves being reared as a second generation on the same ration. So far, they appear to be doing very well. A little vitamin A appears to work wonders when added to rations of grain and poor-quality hay.

We have been much interested in the color and vitamin A potency of the milk and butterfat of cows fed these various grades of hay, and also of cows fed these rations supplemented with vitamin A. Carotene, the precursor of vitamin A in plants, is a yellow pigment; cows convert some of it into vitamin A, but not all. The greater portion of the vitamin A potency of milk is due to the colorless vitamin A itself, which the cow has made from carotene; but some of it is also due to the feed carotene that occurs unchanged in the milk. Ninety to 95 percent of the yellow color of butterfat is due to this unchanged carotene, and the color of the melted fat is proportional to the concentration of this pigment in it. Under similar conditions, Holstein and Ayrshire cows convert carotene into vitamin A more easily than do Jerseys and Guernseys, so a greater proportion of the vitamin A potency of Holstein and Ayrshire milks is therefore due to colorless vitamin A and less of it to carotene, than in the case of the Jerseys and Guernseys. This is why, on the same feed, butterfats from the former tend to have less yellow

color than those from Jerseys or Guernseys. But under the same conditions of feeding there is very little difference in the total vitamin A, weight for weight, in the butterfats from these different breeds. The main differences in the color and vitamin A value of butters is due to differences in the feed. Cows have a limited capacity to convert carotene into vitamin A. As the carotene in the feed increases, the capacity of the cow to convert it into vitamin A is exceeded, and larger proportions of unchanged carotene occur in the butterfat along with the vitamin A that the cow has made. To a limited extent they increase together so that a highly colored butterfat is likely to be rich in total vitamin A potency and vice versa (see tables 8 and 9).

Table 7.—*Carotene in butter as affected by various kinds of roughage.*

Kind of roughage in ration	Carotene Content of Butterfat[1]			
	Holstein	Jersey	Average	
			Holstein	Jersey
	gamma per g.	gamma per g.	gamma per g.	gamma per g.
Pasture (spring & fall)[2]	3.6 to 7.6	8.1 to 17.0	5.8	11.4
Pasture (midsummer, 1934)[3]	1.2 to 3.2	3.6 to 4.2	2.2	3.9
U. S. No. 3 timothy hay with 20 lbs. of carrots	2.4 to 2.5	3.9 to 5.9	2.5	5.1
U. S. No. 1 alfalfa hay	1.1 to 3.1	2.7 to 3.7	1.9	3.2
U. S. No. 1 timothy hay	0.8 to 1.6	0.8 to 2.5	1.2	1.3
U. S. No. 3 alfalfa hay	..... 0.5	0.5 to 1.1	0.5	0.8
U. S. No. 3 timothy hay	0.2 to 0.6	0.4 to 0.6	0.4	0.6

[1]The carotene content is practically a measure of the color of melted butterfat and vice versa.
[2]Cows got some hay in addition to pasture.
[3]Rainfall during July and August, 1934, about 65 percent normal.

Table 8.—*Relation of carotene in the feed to the carotene in the butterfat (same Holstein cow fed thirty days on each ration.)*

Roughage in the ration	Estimated daily carotene eaten	Carotene content of butterfat[1]
	grams	gamma per g.
Pasture with alfalfa hay	2.36	4.5
Extra green alfalfa hay (15 lbs.)	0.59	3.3
U. S. No. 3 timothy hay and 15 lbs. carrots	0.64	2.6
U. S. No. 1 alfalfa hay (15 lbs.)	0.22	2.0
U. S. No. 1 timothy hay (15 lbs.)	0.14	1.6
U. S. No. 3 timothy hay (15 lbs.)	0.03	0.4

[1]The carotene content is practically a measure of the color of melted butterfat and vice versa.

In work at Beltsville the butterfat from cows fed a grain mixture along with U. S. No. 1 alfalfa hay was found to be 4 times as potent a source of vitamin A as butterfat from cows fed grain and U. S. No. 3 timothy hay. Many cows in this country are fed rations of grain, corn silage, and hay. If an alfalfa hay rich in carotene is used, the milk may contain on an average about 2,000 Sherman units of vitamin A per quart, or the butterfat about 50 units per gram. Fats, from milk from cows fed a similar ration containing timothy hay, have been reported by two laboratories to possess 8 and 13 units of vitamin A potency per gram respectively. Good timothy hay may lead to the production of butterfat richer in vitamin A than this, but feeding a very poor timothy hay as the only roughage in the diet may result in a butterfat that is as white as lard and contains only about 1 Sherman unit per gram. Butterfat that is similarly poor in vitamin A may also result from the use of very poor alfalfa hay as the sole roughage in the diet. On the other hand, rations consisting solely of hay and grass-silage, or of grass-silage alone. or of good pasture, may lead to the production of butterfat containing close to 100 Sherman units of vitamin A per gram.

In tables 9 and 10 are shown the variations in the vitamin A potency of milk or butterfat brought about in some laboratories as a result of variations in the carotene content of the diet of the cow.

Table 9.—*Relation between the quantity of carotene in the feed and the amount of Vitamin A in the milk (results of Peterson, Bohstedt, Bird, and Beeson).*[1]

	Lot 1		Lot 2	
	Herd ration	AIV ration	Herd ration	AIV ration
Carotene in the feed (mgs.)	357	561	298	510
Vitamin A in the milk (International units)	6,644	11,389	5,894	10,785

[1]The herd ration consisted of grain, hay and corn silage. In the A.I.V. ration, A.I.V. alfalfa silage replaced the corn silage and ½ the hay. Two lots of A. I. V. alfalfa silage were used.

Table 10.—*Relation between the carotene in the feed and the concentrations of carotene and Vitamin A in the butterfat. (Data from Gillam and Heilbron.)*

Group of cows	Carotene in butterfat	Vitamin A in butterfat
	gamma per g.	gamma per g.
D1, Control	0.94	2.86
D2, Ration included 40 lbs. AIV grass silage[1]	2.95	5.53
D3, Ration included 70 lbs. AIV grass silage[1]	3.67	4.81
D4, Ration included 70 lbs AIV grass silage plus 4 lbs, dried grass[1,2]	4.28	5.51

[1]The A. I. V. grass silage was rich in carotene.
[2]The dried grass was rich in carotene.

The vitamin A potency of commercial milks was given by Wisconsin workers recently as follows (Journal of the American Medical Association, May 4, 1940, page 1748):

Per quart (winter: Jan. to Apr.)	Market milk av., 1,088 U.S.P. units
Per quart (winter: Jan. to Apr.)	Guernsey milk av., 1,241 U.S.P. units
Per quart (winter: Jan. to Apr.)	Certified milk av., 1,334 U.S.P. units
Per quart (summer: June to Oct.)	Market milk av., 1,906 U.S.P. units
Per quart (summer: June to Oct.)	Guernsey milk av., 2,415 U.S.P. units
Per quart (summer: June to Oct.)	Certified milk av., 1,995 U.S.P. units

When cows have pasture in summer, they store up vitamin A in their bodies, and use this in winter to keep up somewhat the vitamin A potency of their milk.

* * * * *

Following the above paper, H. T. Converse, of the Bureau of Dairy Industry, Beltsville, described his work on the vitamin A requirements of very young calves, and presented slides showing pictures and tables, illustrating the effect of vitamin A in calf feeding.

Several questions were asked by farmers concerning this talk by Dr. Cary and Mr. Converse. Before the meeting closed for lunch, Dr. K. L. Turk, Head of the Dairy Department of the University of Maryland, made the following comments:

These talks by Dr. Cary and Mr. Converse have been very complete in showing the value of quality hay in dairy rations. I think it should be emphasized, however, that the results given showing weak and dead calves came from feeding very abnormal rations. It is questionable if very many farmers in this group ever feed rations as poor in quality. Also, it should be pointed out that under practical feeding conditions in Maryland our cows are on pasture throughout the summer period. Pasture grass is rich in carotene, the parent substance of vitamin A, and cows have the ability to store large quantities of vitamin A in their livers and in the fatty tissues of their bodies. Under most practical conditions this supply would probably be sufficient to prevent calving troubles similar to those pointed out in this discussion. Furthermore, I would like to caution you against the feeding of large quantities of cod liver oil to milking cows since we know that it may cause a decrease in the fat percentage in the milk. It seems to me that the major point for us to take home from this meeting is to realize the importance of expending our best efforts in making hay and silage of high feeding quality and in pasture improvement so that it will not be necessary to buy vitamin supplements.

REDUCING BARLEY FAILURES IN MARYLAND

R. G. ROTHGEB, Maryland Experiment Station

In recent years winter barley has become an important feed crop in Maryland. According to the United States Census of Agriculture, a crop was harvested from 36,829 acres in 1934, as compared to 9,832 acres in 1929. Annual estimates indicate that the increase started in 1931 and has continued up to the present year. In 1940, there was an estimated acreage of 79,000. This area represents a little more than three per cent of all crop land in the State.

In territory where it is adapted, winter barley has ranked next to corn in production per acre for both pounds of grain and pounds of total digestible nutrients in the grain. In the latter respect it has been about 62 per cent as productive as corn and has been well ahead of wheat and oats. Average yields of grain for the State over a period of years have ranged from 25 to about 35 bushels per acre. Under favorable growth conditions yields of 40 to 50 bushels per acre have not been unusual.

In light of the foregoing statistics it would appear that failures with barley in Maryland have not been serious enough to discourage rapid expansion in acreage nor to prevent the crop from having a high rank as a feed grain. However, the fact that there is a considerable spread between the average yield and the yield on good farms indicates that all is not well. Moreover, poor crops from one cause or another have been observed from time to time. It is conceivable that as the acreage expands there will be a tendency for a greater proportion of the crop to be grown under unfavorable conditions. In order to prevent some of these troubles in the future it seems appropriate to discuss some of them at this time.

Where barley should be grown many failures can be prevented by an understanding of the climatic and soil requirements of the crop. In the first place, it is restricted to a zone where the winters are not too cold nor the springs too warm. Low winter temperature may cause the plants to die or become weakened through freezing, while warm, humid weather in late spring favors the development of serious diseases. Winter barley will not withstand cold nearly so well as will wheat or rye. For this reason the crop is not grown extensively north of a line running through southern Pennsylvania and the middle of Ohio. North of the line and at high altitudes south of this line where hard freezes are apt to come early in the fall and continue through the winter, it gives way to spring barley. Provided proper attention is given to time and rate of seeding, the more hardy varieties succeed very well in Maryland at elevations up to 800 feet.

Barley is also more exacting in its soil requirements than is wheat. It does not do well on sandy soils or on poorly drained soils. Land that remains soggy in late winter or early spring, when freezing and thaw-

ing takes place, is conducive to heaving, a process which is very injurious to plants already weakened by exposure to cold.

The fertility requirements of barley are similar to those of wheat, except that the former is more sensitive to soil acidity. If the need for lime is pronounced, it will pay to lime for barley. On dairy farms where there is much manure there may be danger of getting too much nitrogen in the soil and thereby causing the barley crop to lodge. Less manure should be applied or more phosphorus should be added to keep the manure in proper balance. Soil tests should indicate the kind and amount of fertilizer to apply.

Eleven counties in Maryland produce more than 90 per cent of the barley crop. The area of heaviest production begins with Washington County on the west and extends through central Maryland to Cecil County on the east. A smaller acreage occurs in Kent, Queen Annes and Talbot Counties on the Eastern Shore. The barley area is characterized by fine-textured, well-drained soils, and conforms closely to the dairy sections of the State. Winter barley can be grown in southern Maryland, but considerable care must be used in the choice of soil in this section of the State. Due to the high elevations prevailing in Garrett and Allegany Counties, it is not to be recommended there at all.

Disease Control

In the barley-growing section of the State, diseases often limit yields and reduce the quality of the crop. Loose smut, covered smut, scab, stripe, and powdery mildew are diseases which singly or in combination frequently cause serious losses in Maryland.

Being very conspicuous, even to the untrained observer, the smuts probably cause more comment than do the other diseases. If allowed to increase in a seed stock from year to year, the smuts may limit yields very appreciably. Fortunately, control measures are known which are quite effective. They vary according to the type of smut present.

Loose smut is much in evidence during the heading stage of the crop. The presence of the disease is shown by the "black heads" scattered over the field. These barley heads bear no grain, the kernels being replaced by a black, powdery mass of tiny smut spores. The latter are the "seeds" of the disease. They are finally dispersed by wind and rain to infect barley kernels developing on healthy plants. Such kernels, though of sound appearance when threshed, carry the disease over to the next crop. At present, two kinds of loose smut are recognized by pathologists, namely, black loose smut and brown loose smut. The former can be controlled by seed treatment with an organic mercury dust such as Ceresan. At present, however, brown loose smut can be controlled only by the hot water treatment, a procedure which is not practical for general farm use. It is used to best advantage in cleaning up foundation stocks of seed from which clean seed can be multiplied.

Covered smut, like loose smut, replaces the kernels on an infected head. Due to the fact that the masses of spores are enclosed in thin membranes, the diseased heads are never so conspicuous as are heads infected with loose smut. Moreover, covered smut spores ordinarily are dispersed only by mechanical means. Consequently, they are liberated by the threshing machine and thus come in contact with the surfaces of threshed kernels. If not destroyed, they are planted with the seed and infect the resulting seedlings. Fortunately seed treatment with organic mercury dust is very effective in killing the spores of loose smut. There is little excuse for the presence of this disease.

Barley stripe is also a seed-borne disease which is controlled by dust treatment. In the early stages of attack, plants show striping of the leaves. Later the whole plant turns brown and dies.

Scab, or head blight, may partially or completely destroy infected heads. The disease parts die prematurely. Included kernels are shriveled and often develop a pinkish coloration. The disease may also attack the young plant at the time of germination, causing seedling blight. Its control is complicated by the fact that it is not only carried on the seed, but also winters over in the field on old cornstalks, straw, and grain stubble. Partial control is obtained by seed treatment and the plowing under of crop refuse prior to barley planting.

Powdery mildew limits yields by reducing the effective leaf surface of the plant. Breeding of resistant strains gives some promise of future control.

To a great degree, barley diseases can be controlled by a simple, practical program as follows:

1. Practice crop rotation. Barley should not follow barley year after year. It should be used in a rotation which includes one or more years of grass or hay.

2. Plow for barley. Thoroughly turn under all corn stubble, straw, and barnyard manure in order to control scab.

3. Use disease-free seed. If the local farm stock of seed becomes infected with loose smut, purchase a clean lot for the next planting. Make use of certified seed. If home-grown seed is used, be sure that all light or chaffy seeds have been blown out.

4. Treat all seed with an organic mercury dust, such as Ceresan. Whether the seed is purchased or home-grown, it will pay to see that it has been treated before planting. Be sure to follow the directions on the container carefully. The material is poisonous. Ordinarily, the treatment is most conveniently carried out by placing the required amount of dust (one-half ounce per bushel) with the seed in a closed container as a barrel and rotating until all kernels are thoroughly coated. Treated seed can be planted the next day or, if thoroughly dry, it can be bagged and stored for months. Do not feed the treated grain to livestock.

Choice of Variety

Except in Garrett and Allegany counties, spring barley is not recommended for Maryland. The hot, humid weather prevailing at the lower altitudes of the State during the maturity period of the crop prevents satisfactory performance. On the other hand, certain varieties of winter barley can be used with success.

At present two bearded varieties, Tennessee Winter and Marnobarb, occupy most of the Maryland acreage. A small acreage of beardless (hooded) barley is grown, but due to its weak straw, brittle heads, and indifferent yields it has not found extensive use in the State.

Tennessee Winter and similar strains have been grown successfully for many years. It is one of the most cold-resistant barleys known. The straw is relatively short and somewhat weak. It has a roughly barbed awn or beard which is very annoying to men who harvest the crop as well as to animals that eat the straw. Nevertheless, it is still a popular variety, especially under trying conditions.

Marnobarb is a smooth awned variety developed by the Maryland Experiment Station. Its awns do not have the barbs along the sides as do those of Tennessee Winter. Consequently, it causes little discomfort to men or animals. Moreover, it is taller and has stiffer straw than the older variety. On the other hand, it is less winter-hardy and less resistant to brown loose smut. Under favorable conditions it usually out-yields Tennessee Winter, but under adverse conditions it is at a disadvantage. It has found favor in central Maryland.

Cultural Operations

Due to the fact that all winter barley is rather susceptible to winter-injury, time and rate of planting are quite important. If the crop is put in too late, the plants are too small when cold weather arrives and many of them freeze out. If planting is done too early, the plants may start to tiller in which case they again suffer winter injury from which they do not recover. In general, the best time to plant is a week to ten days before the best date for wheat planting. In central Maryland the crop succeeds best when planted from September 25 to October 5. If too much growth is being made in the fall, pasturing is advisable.

In order that a good stand be obtained a seeding rate of two bushels per acre is recommended. Care should be exercised to see that the drill is putting on the amount indicated.

If the crop is to be combined, it should be allowed to become "dead ripe," so that the threshed grain may be stored without danger of heating.

Conclusion

Winter barley is a crop quite suitable for furnishing a considerable portion of the feed grain needed in central Maryland. The acreage is expanding rapidly and with the expansion some difficulties are developing which can be overcome largely by an understanding of the limitations and cultural requirements of the crop.

FERTILIZER APPLICATION METHODS

By M. V. Bailey

Band placement of fertilizers has been increasing in popularity for the past few years.

The theory of the method is that holding the fertilizer in a band keeps a large part of it from contact with the soil. This lack of contact with the soil prevents fixation of the phosphoric acid into an unavailable form.

The advantages of the method are: It increases the efficiency of the fertilizer and enables a farmer to grow good crops with less fertilizer per acre; it eliminates the danger of seed or root injury by proper placement of the fertilizer.

The disadvantages are: It requires high-priced machinery to place the fertilizer; it slows down the planting operations; the residual fertilizer is not evenly distributed over the field and the following crop is apt to show the row effects in an uneven growth.

During the time this method of fertilization has been becoming popular, the practice of broadcasting nitrogen and plowing it under with large cover crops, or crop wastes, has been on the increase. The advantages of this method are: It hastens rotting of the coarse organic matter and prevents nitrogen starvation in the following crop; it puts the nitrogen down in the moist soil where roots can feed on it even in periods of drought; if some lime goes in with the nitrogen, this stimulates the bacterial activity and neutralizes the acids which develop.

The two methods are seemingly opposed to each other in principle, but both are right, within limits. Probably a combination of the two is the most advisable practice to follow.

The excuse that phosphoric acid must be band placed to prevent fixation is a weak one because it is just an admission that the soil has needed lime and it has not been supplied. The most practical solution to the phosphorus fixation problem is to lime the soil frequently and abundantly. We are using only a fraction of the lime that should be used.

The combination of nitrogen and lime plowed under with a reasonable application of mixed fertilizer along the row is proving very successful throughout the eastern part of the United States. It is decidedly on the increase. Farmers like the idea of plowing the nitrogen down because it eliminates the need for side dressing—a job that is always a nuisance and one never knows just when it should be done. Also, it gets the job out of the way early in the season and they can forget about it.

Plowing under large cover crops, or applications of crop wastes like cannery refuse or corn stalks, adds to the ever-diminishing supply of humus in the soil. It is really a soil-building practice.

The success of this method of using nitrogen has led some farmers to plow under a good share of the mixed fertilizers for some crops. This is proving very satisfactory on limed soils and particularly for crops which get large amounts (1000 to 2000 lbs.) of fertilizer per acre. The

plow-under treatment, plus a good heavy dose of starter solution at planting time, has grown some very good crops of tomatoes with no other fertilizer applications.

In Indiana, on Crosby silt loam soil, the following corn yields were secured in 1940.

Treatment 200 lbs. per acre of 0-12-6 band placed along the row on all plots	Yield in bushels per acre
Nothing plowed under	30
100 lbs. calcium cyanamid and 100 lbs. muriate of potash per acre plowed under	49
200 lbs. calcium cyanamid and 100 lbs. muriate of potash per acre plowed under	56
400 lbs. calcium cyanamid and 100 lbs. muriate of potash per acre plowed under	68

Digging into the soil immediately after plowing under a large rye crop revealed that the cover crop was not left in a mattress-like layer under the plowed soil to prevent the upward movement of soil water. It is left in flat strips which are so tightly packed by the weight of the soil that water soon moves through it. When calcium cyanamid was plowed under with the rye, it soon rotted and a short season crop like snap beans soon put roots down into the rotting organic matter and began feeding on it.

RESULTS OF HYBRID FIELD CORN DEMONSTRATIONS

ALBIN O. KUHN
Maryland Extension Service

Twenty-two hybrid field corn demonstrations were conducted in 20 of Maryland's 23 counties. The field corn hybrids included in these tests were selected because of outstanding performance in Maryland Experiment Station tests and Extension demonstrations conducted prior to 1940. An effort was made to conduct the demonstrations under as wide a variety of conditions as possible.

The demonstrations were in charge of the Extension Agronomist in cooperation with the respective county agents and local farmers. The Experiment Station assisted in securing seed, in running moisture tests on samples of harvested corn and in calculating yields.

The general plan of the demonstrations was to plant four rows each of a number of corn hybrids across the field beside the farmer's local corn and one popular variety of open-pollinated corn. The method of planting and cultivating was the same in each case as the cooperating farmer had been practicing in the past.

At harvest time, hills having the same number of plants, surrounded by similar hills, were harvested and weighed. Moisture samples were taken in order to adjust the weight to a uniform moisture percentage. As far as possible, the 25 samples were selected by taking five sub-samples down one row, a definite number of hills being skipped between sub-samples to avoid the personal element entering into selection and to aid in evening up any variation in soil conditions.

The results of the demonstrations conducted in Allegany and Garrett Counties at an elevation above 2,000 feet were not included in the summaries, as none of the hybrids entered were sufficiently early for the 1940 growing season at that altitude.

The results obtained this year followed very closely the results obtained in the 1939 demonstrations. Most of the hybrids included in the demonstrations yielded as well as or better than the local corn. Several hybrids consistently yielded more while others consistently yielded less than local corn. Throughout the demonstrations, hybrids showed the most yield superiority in the least productive tests. This same situation was brought out in the replicated trials conducted by the Experiment Station during 1940.

The ability of certain hybrids to stand up much better than local corn was demonstrated again this year. Many farmers with whom I have talked consider that this ability to stand up is the outstanding contribution which hybrid corn is making to corn growing in Maryland

Most of the hybrids included in these demonstrations had less diseased corn than the local corn which was grown with them as a check of yield.

The following table gives a summary of those hybrids included in most of the tests over the State except in Allegany and Garrett Counties at higher elevations.

Table I—*Hybrids that were included in seventeen or more demonstrations.*

Kind of Corn	Number of Demonstrations	Yield Relative to Local Corn Per Cent[1]	Per Cent Lodged (Av. 16 Locations)
Hybrid Funk G94	19	118	8
Hybrid U. S. 13	19	116	5
Hybrid Funk G135	19	116	5
Hybrid U. S. 115	18	114	12
Hybrid Indiana 845	17	107	13
Golden Queen	19	101	31
Local Corn	19	100	26

[1]45.7 bushels per acre equals 100 per cent.

In addition to those hybrids included in most of the trials over the entire State, several hybrids were included in a limited number of demonstrations. The results of their performance in these tests is presented

in Table No. 2. These hybrids are divided into four groups. The hybrids which are listed in each group were tried in the same demonstrations. The performance of hybrids U. S. 13 and Funk G94 in the same demonstrations is given to aid in evaluating the performance of the hybrids listed.

Table II—*Hybrids that were included in not more than six demonstrations.*

Kind of Corn	Number of Demonstrations	Yield Relative to Local Corn Per Cent	In These Same Demon's.	
			Hybrid U. S. 13	Hybrid Funk G94
Group 1				
Hybrid Pioneer 314	6	116	128	116
Hybrid Iowa 939	6	107	128	116
Hybrid Woods Early Yellow Dent	6	107	128	116
Hybrid Funk G80	6	105	128	116
Local Corn	6	100	128	116
Hybrid Pioneer 317	6	97	128	116
Group 2				
Hybrid Iowealth 29A	6	119	129	123
Hybrid Woods Yellow Dent	6	110	129	123
Hybrid Pioneer 332	6	107	129	123
Hybrid U. S. 44	6	106	129	123
Hybrid National 125E	6	103	129	123
Local Corn	6	100	129	123
Hybrid Funk G86	6	98	129	123
Group 3				
Hybrid Pioneer 302A	5	111	100	113
Hybrid Funk G125	5	109	100	113
Hybrid Funk G527W	5	105	100	113
Hybrid Funk G88	5	103	100	113
Local Corn	5	100	100	113
Hybrid Funk G235	5	99	100	113
Hybrid Woods White Dent	5	80	100	113
Group 4				
Hybrid Williams 45	8	111	123	125
Local Corn	8	100	123	125

I would like to call attention to the fact that the results presented represent only those obtained in 1940, also that there may be other hybrids not included in these tests which are equally as good as those which were tested this year.

REPORT OF THE SECRETARY-TREASURER FOR THE YEAR 1940

The thirty-fourth annual meeting of the Maryland Crop Improvement Association was attended by approximately 80 farmers and agricultural workers. The meeting seemed very successful. Those who attended took active part in discussing the phases of crop improvement which were presented.

The State Corn and Grain Show was held in the Lord Baltimore Hotel under the auspices of the Maryland Crop Improvement Association on January 15th and 16th. The exhibit compared very favorably with those of previous years. The quality of the entries was uniformly good and the number of entries was larger than it has been for a number of years. Two hundred and sixty-seven exhibits were entered in the show.

An educational exhibit showing the characteristics of hybrid corn was on display.

Following are the names of the winners in the respective classes:

District I

Class 1—Reids Yellow Dent (13 exhibitors). First, Charles Albright, Reisterstown; second, Edgar Hawker, Frederick; third, R. W. Burtner, Sharpsburg; fourth, Edward Booth, Frederick; fifth, Clark Crawford, Keedysville.

Class 2—Golden Queen (14 exhibitors). First, Mildred Arbaugh, Westminster; second, Maynard Hawker, Middletown; third, Robert H. Holter, Jefferson; fourth, Kathrine Arbaugh, Westminster; fifth, Ezra Arbaugh, Westminster.

Class 3—Lancaster County Sure Crop (11 exhibitors). First, Walter Warehime, Westminster; second, R. W. Burtner, Sharpsburg; third, Eleanor Galt, Westminster; fourth, Jacob Burtner, Boonsboro; fifth, O. W. Burtner, Sharpsburg.

Class 4—Johnson County White (8 exhibitors). First, R. W. Burtner, Sharpsburg; second, O. W. Burtner, Sharpsburg; third, Edward Booth, Frederick; fourth, Charles Albright, Reisterstown; fifth, J. Frank Lupo, Sparks.

Class 5—Hybrid (12 exhibitors). First, T. E. Zimmerman, Frederick; second, L. M. Stup, Frederick; third, D. E. Zimmerman, Frederick; fourth, Howard T. Stup, Frederick; fifth, Robert H. Holter, Jefferson.

District II

Class 6—Yellow Dent (11 exhibitors). First, Frank Walls, Church Hill; second, Presley Taylor, Gambrills; third, Milton Hearne, Hebron; fourth, Irving Jones, Tyaskin; fifth, Samuel Hearne, Salisbury.

Class 7—White Dent (2 exhibitors). First, Walter Hollingsworth, Church Hill; second, C. C. Phillips, Quantico.

Class 8—Hybrid (7 exhibitors). First, Palmer Councell, Church Hill; second, Samuel H. Hearne, Salisbury; third, W. S. Councell, Jr., Church Hill; fourth, W. S. Councell, Sr., Church Hill; fifth, Milton Hearne, Hebron.

State Wide—Honorary

Class 9—Reids Yellow Dent (10 exhibitors). First, D. E. Zimmerman, Frederick; second, C. M. Zimmerman, Frederick; third, T. E. Zimmerman, Frederick; fourth, C. D. Davis, Street; fifth, Howard Burtner, Keedysville; sixth, Maynard Hawker, Middletown; seventh, Dr. Dickerson Gorsuch, Timonium.

Class 10—Golden Queen (9 exhibitors). First, John E. Grove, Westminster; second, Mrs. Ivy Arbaugh, Westminster; third, Walter Warehime, Westminster; fourth, Cecil K. Holter, Jefferson; fifth, Granville Arbaugh, Westminster; sixth, Mrs. Granville Arbaugh, Westminster; seventh, John A. Holter, Jefferson.

Class 11—Johnson County White (6 exhibitors). First, T. E. Zimmerman, Frederick; second, C. M. Zimmerman, Frederick; third, Cecil K. Holter, Jefferson; fourth, Howard Stup, Frederick; fifth, Matt Harding, Cambridge; sixth, D. E. Zimmerman, Frederick.

State Wide Class—White Cap

Class 12—White Cap (8 exhibitors). First, R. W. Burtner, Sharpsburg; second, Howard T. Stup, Frederick; third, L. M. Stup, Frederick; fourth, Mellor K. Ward, Jarrettsville; fifth, Leroy Burtner, Sharpsburg.

State Wide Class—Single Ear

Class 13—Single Ear (27 exhibitors). First, T. E. Zimmerman, Frederick; second, Cecil K. Holter, Jefferson; third, Cecil K. Holter, Jr., Jefferson; fourth, D. E. Zimmerman, Frederick; fifth, C. M. Zimmerman, Frederick.

Maryland Seed Growers' Display

Class 14 (11 exhibitors). First, T. E. Zimmerman, Frederick; second, Maynard Hawker, Middletown; third, D. E. Zimmerman, Frederick; fourth, Cecil K. Holter, Jefferson; fifth, Jacob Burtner, Boonsboro; sixth, Dr. Dickerson Gorsuch, Timonium; seventh, Granville Arbaugh, Westminster; eighth, Howard T. Stup, Frederick; ninth, R. W. Burtner, Sharpsburg; tenth, Charles Albright, Reisterstown.

Grand Champion

Class 15—T. E. Zimmerman of Frederick, Maryland, was named winner of the grand champion award for the best ten-ear exhibit of corn this year in the Annual Maryland Corn Show. The award was a plaque.

4-H Club and Future Farmer Members

Class 16—Reids Yellow Dent (7 exhibitors). First, Roger Burtner, Keedysville; second, George Burtner, Keedysville; third, Douglas Haines, Keedysville; fourth, Billy Jones, Dickerson; fifth, Waldon Burtner, Boonsboro.

Class 17—Golden Queen (9 exhibitors). First, John A. Holter, Jefferson; second, Cecil K. Holter, Jr., Jefferson; third, Vernon Wolfe, West-

minster; fourth, Richard R. Holter, Jefferson; fifth, Edwin Burtner, Keedysville.

Class 18—Johnson County White (4 exhibitors). First, Richard Holter, Jefferson; second, Cecil K. Holter, Jr., Jefferson; third, Edwin Burtner, Keedysville; fourth, Roger Burtner, Keedysville.

Class 19—Other Dent (15 exhibitors). First, Edwin Burtner, Keedysville; second, Waldon Burtner, Boonsboro; third, Roger Burtner, Keedysville; fourth, Odus Bragg, Charlotte Hall; fifth, Grady Bragg, Charlotte Hall.

Class 20—Hybrid (14 exhibitors). First, Robert Delander, Jefferson; second, Roger Burtner, Keedysville; third, George Burtner, Keedysville; fourth, Waldon Burtner, Boonsboro; fifth, John A. Holter, Jefferson.

Grain

Class 21—Wheat (13 exhibitors). First, Maurice Wolfe, Westminster; second, Clifford Smith, White Hall; third, Charles Smith, White Hall; fourth, Vernon Wolfe, Westminster; fifth, H. Paul Morelock, Westminster.

Class 22—Barley (14 exhibitors). First, Fred C. Jones, Darlington; second, Charles Smith, White Hall; third, Cecil K. Holter, Jefferson; fourth, R. W. Burtner, Sharpsburg; fifth, R. W. Burtner, Sharpsburg.

Class 23—Rye (9 exhibitors). First, Howard Burtner, Keedysville; second, C. M. Zimmerman, Frederick; third, Edward Booth, Frederick.

Class 24—Soybeans (8 exhibitors). First, Douglas Parks, Cockeysville; second, H. Paul Morelock, Westminster; third, Margaret F. Reese, Westminster.

Class 25—Maryland Grown Red Clover Seed (21 exhibitors). First, Granville Arbaugh, Westminster; second, O. W. Burtner, Keedysville; third, D. E. Zimmerman, Frederick; fourth, Edward Booth, Frederick; fifth, C. M. Zimmerman, Frederick.

Class 26—Lespedeza (3 exhibitors). First, Jacob Burtner, Boonsboro; second, Howard Burtner, Keedysville; third, Norman A. Twilley, Salisbury.

The exhibits were judged by C. C. Phillips of the University of Delaware and Geary Eppley and Albert Woods of the University of Maryland.

At the business meeting on Wednesday, January 15th, the following officers were elected:

President—James R. Galbreath, Street, Md.

Vice-President—Cecil K. Holter, Jefferson, Md.

Secretary-Treasurer—Albin O. Kuhn, College Park, Md.

Delegate to Farm Bureau—Edwin Warfield, Jr., Woodbine, Md.

TREASURER'S REPORT

Maryland Crop Improvement Association
January 1, 1940, to December 31, 1940

Balance in bank—January 1, 1940		$ 157.03
Receipts		
Appropriation from Maryland State Fair Association	$600.00	
Appropriation from Maryland State Fair Association for Tobacco Premiums	200.00	
Dues taken out of awards (1940)	49.00	
Payment for material used on exhibit at Timonium Fair	13.48	
Total Receipts		$ 862.48
Total		$1,019.51
Expenditures		
Maryland Farm Bureau dues	$ 20.00	
Awards, 1940 Corn and Grain Show (Less amount reserved for dues)	390.00	
Awards, 1940 Tobacco Exhibit	192.00	
Incidental expenses in connection with tobacco exhibit	8.00	
Ribbons, 1940 Corn and Grain Show	21.43	
Labor in connection with 1940 Show	14.40	
Postage, circulars, letters, etc. (1940)	9.17	
Printing exhibitor tags	2.50	
Purchase of 12 galvanized storage boxes	25.80	
Express charges on storage boxes	.50	
Construction of exhibit	3.16	
Material for exhibit	7.23	
Painting of corn trays (labor)	11.55	
Paint for painting corn trays	5.25	
Printing stationery and envelopes	7.50	
Purchase of 24 grain pans to display grain	2.40	
Miscellaneous supplies for exhibit and show	4.70	
Expenses to judge for show	29.60	
Dues taken out of awards	49.00	
Refund to Fair Board for Corn and Grain Show	1.36	
Total Expenditures		$ 805.55
Cash in Bank (December 31, 1940)		213.96
Total		$1,019.51

Baltimore, Maryland, January, 1941.

We, the undersigned, have examined the books of the Treasurer of the Maryland Crop Improvement Association and have found them to be correct.

Auditing Committee,

H. M. CARROLL,
H. J. PATTERSON.

REPORT

OF THE

THIRTY-SECOND ANNUAL MEETING

OF THE

Maryland State Beekeepers' Association

The Lord Baltimore Hotel, Baltimore, Maryland

January 17, 1941

The thirty-second annual meeting of the Maryland State Beekeepers' Association opened with an inspectors' meeting at 10 A. M., at which the District Apiary Inspectors met with the State Inspector and discussed problems peculiar to the newly inaugurated Apiary Inspection Service.

At 2:30 P. M. a business session was held. A brief summary of the State-wide work was given by George J. Abrams, State Apiary Inspector, followed by detailed reports of the various district inspectors on the work which they did in their inspection areas.

A Beekeepers' Dinner was held in a nearby restaurant after which the group inspected the exhibits and entries in the Honey Sweepstakes, which exhibition was set up in connection with the winter Farm Products Show, sponsored jointly by the Farm Bureau, The University of Maryland Extension Service and the Maryland Fair Board.

The evening session was called to order by President Harold L. Kelly at 8:15. He called on S. B. Shaw, head of the Maryland Department of Markets, who discussed Maryland marketing problems in general, and called attention to marketing problems which might be attacked by the Beekeepers' Association. Mr. Kelly then called upon Harold J. Clay of the U. S. Department of Agricultural Marketing Service who discussed the impact of the present European War on the honey and beeswax market.

Following Mr. Clay's talk, President Kelly called upon James H. Hambleton, head of the U. S. Bee Culture Laboratory, who told of the various research problems which are being conducted by the Federal Bee Men. He discussed in particular the work being done on pollen and the attempt to develop strains of bees resistant to American foulbrood.

At the termination of this discussion, E. A. Andrews displayed colored slides which he had made from photographs of various honey displays.

Dr. Ernest N. Cory announced the winners in the Sweepstakes and distributed prize winning checks.

The election of officers was postponed until the spring meeting. The meeting adjourned about 11 o'clock.

ANNUAL ADDRESS OF THE PRESIDENT

HAROLD L. KELLY, Forest Glen.

Fellow Beekeepers, Ladies and Gentlemen:

We meet today to inaugurate the beginning of a new year in Maryland beekeeping with the usual optimism that this year will be better than last. If we were not optimists we would not be beekeepers. So far as honey crops were concerned, last year was not as some of us would have had it, but as Dr. C. C. Miller would say, "We are one year closer to a good year." However, we do have something to be thankful for—the completion of the first year of foulbrood eradication work, the details of which we will hear later from Mr. George J. Abrams and the inspectors themselves.

The Governor and the last Legislature granted our request for funds for inspection work by appropriating $2,000.00 a year for 1940 and 1941. This was only two-thirds of our request. Last January at Hagerstown, I stated that we would probably be active at this time in an effort to have the additional $1,000.00 restored to the budget. For any hopes of success it would be advisable to have concrete evidence that the amount now available is not adequate. As the inspection service has been in force only one year, and as it takes at least one season to get the work organized, it does seem that the work is well enough along to provide good arguing points. We still have another season to go on the original appropriation, and I am reliably informed that our item for $2,000.00 a year is again safely in the budget for 1942 and 1943. By the time the Legislature meets in 1943 there will have been completed three seasons of inspection work and, we will then know definitely whether or not an adequate inspection service that will be able to control foulbrood can be had for $2,000.00.

During the past year we had our usual field meetings, all very well attended. Our host for the meeting for the central part of the state was our congenial past President, Mr. Charlie Baile. We met at his home by the old mill at Sykesville; that was in June. The July meeting was on the Eastern Shore at the home of Mr. Adkins, near Salisbury. Mr. and Mrs. Adkins are not beekeepers but have bees on their large dairy farm and proved to be very pleasant hosts. For our Western Maryland meeting, we penetrated farther West than before, into the coal mining regions of Garrett County. Our host was Mr. P. E. Conroy, the Postmaster of Barton, Maryland. His home and apiary are directly

on top of a coal mine, and the small dump cars operating from the mine entrance just above constantly reminded us of the fact.

Following the summer meetings came the County and State Fairs, all of which had improved and commendable displays. The prize money was well worth trying for. The Fair Exhibits are climaxed by the Sweepstake Exhibits that you see downstairs in the lobby. Those exhibits are competing for prize money totaling $300.00.

In closing, I wish to say just a few words regarding the evening program. The usual effort has been made to bring you interesting and instructive speakers. You will observe in the program the names of men who are nationally prominent in beekeeping and marketing, men who have been on our program before, and, we hope, will be again.

REPORT OF THE EXTENSION SPECIALIST IN APICULTURE

GEORGE J. ABRAMS, University of Maryland, College Park.

Two major objectives were accomplished in apicultural work during 1940: first, a consolidation of the previous year's extension teaching gains; and second, a highly successful inauguration of the apiary inspection service.

Extension Teaching—The extension worker has felt for several years that some concentration of teaching effort should be made among interested beekeepers recently contacted and who had evinced a desire to expand their beekeeping projects, rather than concentrate on new contacts. This was done with a number of beekeepers with whom contact had been made in the previous two or three years at bee culture schools and beekeepers meetings. They had shown a desire for personal instruction in the apiary, and it was felt that a major portion of the extension worker's time during 1940 should be concentrated on these beginners. As a result, a large proportion of the 258 personal visits made were devoted to what might be termed a consolidation of teaching gains.

Apiary Inspection—In addition to this education work, the apiary inspection service became firmly established as an integral part of the apicultural scene in Maryland. While funds for this service became available October 1, 1939, it was not until the spring of 1940 that the work really got under way. The Maryland apiary inspection service is established on somewhat different lines from similar services in other states. It is based on the resident county inspector, under the direction of the state apiary inspector located at College Park. In accordance with this plan, nine district apiary inspectors are now employed.

The object of each inspector's work the first year was primarily to familiarize himself with his territory, locate and chart the apiaries, concentrate on known diseased areas in the territory, and work out from these known centers of infection. This was possible in six counties where known centers of infection existed. In the other counties the

inspectors attempted to scout their regions, and to make more or less cursory investigations of conditions rather than to attempt thorough and complete examinations of all apiaries. Apparently this plan was accompanied by considerable success inasmuch as disease was found for the first time in three new counties and effective blows were administered old centers of infection. Of course, it is too soon to determine accurately whether infection has been completely eradicated from these old centers.

It was hoped that 8,600 colonies could be inspected during the year 1941. This arbitrary figures was set by estimating that an inspector could examine an average of 40 colonies per day. Since there are an estimated 32,000 hives in Maryland, this would mean that every colony in the state would be inspected once in four years. This, of course, was a very optimistic goal to set, since the average Maryland apiary is composed of eight or more colonies, which would necessitate an inspector making five visits a day to accomplish the inspection of forty colonies. Since the territory covered by each inspector was new and since considerable time was spent in locating apiaries, this forty-colony ideal was not reached. The service as a whole averaged twenty-seven colonies a day.

It is felt that after a year or two of work, each district inspector will be so thoroughly familiar with his county road system and with the location of the various apiaries that less time will be spent in going to and from apiaries. This should make possible an increase in the daily average and it is hoped it will be raised to the forty-colony level.

The $2,000 appropriation allows a total of 215 inspection days per year at the per diem rate of seven dollars a day, and $300 for supervisory travel and $200 for supplies and incidental expenses. Since 6,279 colonies were inspected during the year, the service was maintained at a cost of approximately 31c per colony. This is comparable to the per colony costs in other states, and it is fairly certain that once the inspection service gets into stride and inspectors know their territory thoroughly and the forty-colony daily average established, the cost per colony will be decreased accordingly.

Results of this year's inspection work show 3.8 per cent of the 6,279 colonies inspected to be infected with American foulbrood. This is a decrease from 7.9 per cent of the colonies found infected in 1939. However, this decrease is not significant inasmuch as it probably reflects only the fact that a larger total sample was taken. Of 645 apiaries inspected, 7.4 per cent were found diseased. This is a decrease from 18.4 per cent of the apiaries found diseased in 1939, and undoubtedly also reflects the larger number of inspections made.

The most significant result of the year's inspection work is indicated by the fact that American foulbrood was found in thirteen of the twenty-three Maryland counties. Of the remaining ten counties, eight received no inspections at all. There are few known beekeepers in St. Mary's, Charles, Calvert, Somerset and Kent counties, and the

limited available inspection days made it unadvisable to do inspection work in Dorchester, Howard and Queen Anne's counties, where disease was not suspected of being present. Caroline and Talbot counties received some inspection work, but no disease was found. Of the 13 counties found diseased, Garrett, Anne Arundel and Cecil showed disease for the first time.

In all apiaries where American foulbrood was located, the infected colonies were burned, either by the beekeeper himself or by the inspector at the request of the beekeeper. Little or no opposition was encountered from the beekeepers. With practically no exceptions the inauguration of this service in Maryland was welcomed by the beekeepers, and their hearty cooperation was always in evidence.

Pollination Service—During the previous years an attempt was made by the extension worker to promote a better understanding between fruit growers and beekeepers. An attempt was made also to act as intermediary between these two groups in an effort to help the orchardists secure worthwhile colonies of bees for orchard pollination, and to help the beekeepers establish contact with orchardists desiring to rent colonies. This effort was highly successful, and was furthered during 1940 with increased success.

In general, the idea was to establish a permanent rental plan whereby orchardists with yearly needs for rental colonies and reliable beekeepers with adequate colonies for rent might be brought together. An endeavor was made also not to restrict this work to the orchardists and beekeepers with large holdings, but to effect contacts between smaller growers and beekeepers with small apiaries. This permanent rental plan has much to recommend it and will be continued in future years.

Honey Marketing and Publicity—In an effort to secure free publicity for bee culture and bee products, eight honey demonstrations were set up at seven Maryland fairs and the Winter Farm Products Show. This is an increase of three demonstrations over the previous year. The Frederick, Bel Air and Taneytown Fairs were the new fairs including the Standard Maryland Premium List for Honey and Wax in their catalogs. These three new fairs and the Cumberland, Hagerstown, Timonium and Marlboro Fairs offered worthwhile prize money for bee products. The extension worker set up exhibits of an educational nature at these demonstrations, and it is felt that considerable publicity for honey was secured.

1940—APIARY INSPECTIONS

County	Inspection District	Number of Ap. Visited	Apiaries Inspected	Colonies Inspected	Apiaries Diseased	Colonies Diseased
Garrett	1	196	61	307	5	18
Alleghany	2	130	92	677	2	15
Washington	3	113	111	1,537	4	22
Fred.-Montgom.	4–5	40	40	379	5	80
Prince Georges	9	.....	.....	.....	.....	.....
Carroll	6	148	148	1,181	10	20
Baltimore	7	76	64	587	10	41
Harford-Cecil	8	65	60	861	6	16
Caroline, Kent, Queen Anne	10	20	10	75	0	0
Talbot and Dorchester	11	43	43	362	0	0
		831	629	5,966	42	212
State-wide by: George J. Abrams			16	313	6	32
		831	645	6,279	48	244

WHAT WAR AND DEFENSE CONDITIONS MAY MEAN TO THE BEEKEEPER

HAROLD J. CLAY, Agricultural Marketing Service,
U. S. Department of Agriculture

Much of the 1940 crop of honey in Maryland has been sold, but there is still enough honey left here as well as throughout the rest of the country so that beekeepers generally are keenly interested in knowing what war conditions in Europe, and the Defense Program in the United States will mean to American beekeepers during the coming season.

Is a sharp increase in price likely, as happened during the World War, and, if not, what can beekeepers look forward to in the way of demand for honey and of selling prices? Maryland beekeepers remember that honey sold at retail at 45-50c and occasionally even 60c per pound back in 1918. Is there any prospect of 50c honey during the coming season?

No categorical answer can be given to questions such as these, but it may be profitable to consider why honey prices skyrocketed in the last war period and whether conditions that caused price advance at that time may be paralleled this season.

Perhaps it will be well to discuss at the start the belief of many beekeepers that the trend in honey prices follows that of sugar. Actually, it trails along with the trend of food products as a group and not that of any one commodity such as sugar. Yet the opinion of many folks that honey prices do rise and fall with those of sugar is worth examining.

Sugar and Honey Both Advanced in World War Period

It goes back, in part, to the World War days when both sugar and honey advanced rapidly in price, though not at the same time. In the effort to supply the demand of the army, both abroad and in this country, as well as calls from civilians, sugar became scarce along with wheat, fats, and meats. Prices of sugar rose suddenly at the start of the World War. As a matter of fact, in response to frenzied buying on the part of housewives and others who wanted to guard against a possible shortage, dealers in sugar boosted prices even before the shortage occurred. The average wholesale price of raw (96° centrifugal) sugar in New York in August, 1914, averaged 5.7c per pound, compared with a price of 3.3c per pound in July. This was just a temporary spurt and prices again dropped suddenly to 3.8c per pound in December of that year. Public consumption of sugar was closely regulated by the Government. The amount that a retailer could sell to a customer dropped at one period to 2 pounds a month. Supplies to confectioners and bakers were restricted. Fluctuations in the prices of sugar were wide, but the trend was steadily upward as sugar became more scarce. For a few weeks in the spring of 1920 the wholesale price of raw sugar in New York City exceeded 20c per pound, only to drop below 6c per pound in December of the same year when stocks again became abundant.

Honey prices advanced also during this period, but fluctuations were not so violent and the upward march of the price curve did not come so early as with sugar. No Federal records of selling prices of honey were kept before 1917, but Research Bulletin 119 of the University of Wisconsin, reported prices of honey and other commodities back to 1841, and indicates that in 1914, when sugar prices were shifting up and down so rapidly, honey in Wisconsin did not show the slightest trace of price acceleration, but maintained unchanged levels from January to September, when the price sagged somewhat.

Shortage of Sweets Caused Honey Prices to Soar

Later, as stocks of sugar lessened, demand for honey as a substitute sweet did increase. When sufficient sugar was not obtainable, confectioners, bakers, ice cream manufacturers, and others using sugar turned in desperation to honey. Many of them, according to letters received by the U. S. Department of Agriculture after the War, were pleasantly surprised at the results obtained by using honey in their products, and with more publicity at that time honey might have been used more freely by several branches of industry, even after sugar again became plentiful.

The increased demand for honey, and the shortage of all sweetening agents, caused prices of honey to rise. In Chicago, for example, wholesale prices of Light Amber extracted increased from 12c per pound in June, 1917, to 20c per pound or more on several occasions in each of the three years following, reaching 25c per pound wholesale in the fall of 1918. In many other consuming centers the market price went still higher and commercial beekeepers who sold honey at the right time made so much money that the number of men keeping bees for a livelihood increased sharply.

But all beekeepers did not sell at the right time. Beekeepers in Southern California who sold White Orange honey in January, 1931, for example, obtained 16¼c per pound. By July of the same year the price of White Orange to beekeepers had dropped to 9¼c per pound, a decline of more than 40%. The fact that even 9¼c per pound is twice the present price of White Orange honey in California is not wholly significant, as costs of production have been trimmed sharply in the past 20 years.

I have gone into this detail in outlining the different price reactions of sugar and honey during the World War period to emphasize the point that the relationship often imagined between the price and market trends of the two products is not fully borne out by the available data.

This lack of direct relationship between price trends of sugar and honey was demonstrated again in the fall of 1939. The outbreak of the European War in September, 1939, resulted in a temporary advance in sugar prices. Inspired by the memories of war prices and the scarcity of sugar 20 years before, even though current stocks were adequate, active buying by countless housewives shot up the price of wholesale raw sugar 30% in a few days. Yet during that time honey prices did not move upward more than a small fraction of a cent per pound anywhere, and in Chicago and some other cities the market was actually weaker because of housewives who considered honey a luxury and passed it up for that reason in favor of what they called food necessities.

So much for the sugar-honey angle and the possibility of direct connection between the market activities of the two commodities. Now, what about market prospects for honey for the remainder of 1941?

Higher Prices Secured for Shipments to Canada

For a while in 1940, it appeared that the prices of honey would be increased by reason of increased exports to Canada. The first eleven months saw 2,360,000 pounds of honey shipped to Canada, or more than went out of the United States to all countries during the same eleven months in 1939, when very little was exported to Canada. Partly as a result of the short crop of honey in Canada and the heavy shipments from that country to Great Britain in 1940, prices were higher in Canada than in the United States, even allowing for the customs duty of 1½c per pound on honey entering Canada from the United States, and the 11 percent tax for the difference of exchange valuation, plus the Canadian War Revenue tax of 10%.

It seemed likely that exports to Canada to supply the shortage of honey in that country would continue and would strengthen the market for honey on this side of the border. Several commercial beekeepers who had shipped their honey to Canada had received a premium of 1c a pound on those shipments above the price that some of their neighbor beekeepers were receiving for honey sold to buyers in this country. And a cent a pound for a 40,000 pound car of honey means $400—an item worth considering.

Exports to Canada Embargoed December 2, 1940

Suddenly, with little warning, the Canadian War Conservation Act was introduced in the Canadian Parliament on December 2 and made effective on the same date. This Act included "honey in the comb or otherwise, and imitations thereof" in the list of commodities which were prohibited from entering Canada from "non-sterling countries." Shipments could go after December 2, if contracted for before then.

No other country is taking our honey in appreciable quantities and no other country is likely to do so under present conditions. The former substantial shipments of honey to several European countries stopped suddenly last spring, and since April, 1940, scarcely a pound of American honey has gone to Europe.

Good Domestic Demand for Honey

This puts consumption of the honey crop squarely up to the United States. Fortunately, sales so far this season have been definitely heavier than normal, and for the country as a whole probably less than 30% of the crop remains unsold. Many commercial beekeepers are already sold out completely except for enough honey to take care of their regular customers. Local demand for honey has been exceptionally good, and both local sales and wholesale inquiry are expected to show the results of the advertising campaign for which nearly $20,000 was collected at the Omaha meeting of the American Honey Producers' League and the American Honey Institute.

There is no reason to think then, that most of the 1940 crop of honey will not move into consumption before new crop honey appears on the market. Whether the price of honey will advance or not is less certain, but some slight gain seems probable.

Increased Demand for Farm Products to be Expected

Domestic demand for farm products as a whole continues to improve in response to gains in industrial activity and in the income of industrial workers. The index numbers of factory employment and factory payrolls are higher now than in the prosperous year of 1929. Industrial production is at a new high peak, and, in view of the additional orders recently placed for defense material, is likely to move still higher. Consumer incomes are increasing along with the improvement in industrial activity, with the result that consumer demand for agricultural products is expanding.

Several farm products are selling at higher prices than a year ago. With billions being spent for defense, and with unemployment gradually decreasing, demand for food products generally can be expected to increase, especially for what are sometimes called "luxury" items,—and honey, whether or not we agree with the description, is often listed as a luxury food. Farm prices as a whole are about two-thirds as high as they were in 1929. If honey prices are to follow closely those of other farm products, on this basis alone, they are due for a slight increase. Further, if the trend of prices received by farmers continues upward, as it has for the past six months, beekeepers can expect to share in the general strengthening of the market.

No Sugar Shortage Considered Possible

One thing still remaining to be considered is whether there is any possibility of a sugar shortage during the coming months that may cause an increase in the price of sugar and that the price of honey will automatically strengthen, in the event that buyers of sweets again turn to honey as a substitute for sugar. In the previous war period, however, there was an actual shortage of sugar, and, in fact, of all sweets,—such a shortage that rationing of sugar was practiced.

Today the picture is different. Sugar stocks are more than ample. The carry-over stocks in Cuba the first of January, 1941, amounted to 1,342,000 short tons, or more than twice the normal carry-over of the previous year. Cuba and other countries are now geared to produce a much greater supply of sugar than they were at the time of the World War. If more sugar is needed in the United States, raising the Cuban quota will bring in all that we need. In fact, so much sugar is available in Cuba, which no longer can export to Europe the large volume formerly shipped to that Continent, that present Cuban plans for the coming season contemplate cutting a million tons off the 1941 production of sugar in Cuba. Cane in excess of that necessary to produce marketable sugar may either be left standing or may be turned into high-test molasses or alcohol as the demand for industrial alcohol, into which sugar and molasses can be converted, is increasing. Even if some catastrophe should cut down Cuban stocks of sugar, Puerto Rico, Hawaii, and various Latin-American Countries are able to supplement our sugar requirements. Thus, there seems to be no reasonable expectation of a higher price for sugar except through the lessening of the quota of sugar coming into the country. Certainly, statistics do not warrant any assumption of appreciably higher prices for sugar as the result of any shortage of stocks.

The present outlook, then, is for the remainder of the 1940 crop of honey to move into consumption at either present prices or slightly higher market levels. And those who have been wondering whether a sharp boost in honey prices might come as a result of war conditions, need be optimistic no longer. There is nothing in sight to warrant such an assumption.

4TH ANNUAL HONEY SWEEPSTAKES

Lord Baltimore Hotel—Baltimore—January 17, 1941

Classes	1st Place	2nd Place	3rd Place	4th Place	5th Place
Best Display*	Norris James Baldwin	F. D. Covell Frederick	P. M. Klavhuhn Cumberland	L. B. Shearman Glenarm	Byron Darby Hyattstown
24 lbs. light amber to white extracted honey in 1 lb. jars	John Lindner, Jr. Cumberland	John Lindner Cumberland	P. M. Klavhuhn Cumberland	F. D. Covell Frederick	Byron Darby Hyattstown
24 lbs. amber to dark extracted honey in 1 lb. jars	L. B. Shearman Glenarm	Byron Darby Hyattstown	Norris James Baldwin	John Lindner Cumberland	P. M. Klavhuhn Cumberland
6 sections light amber to white comb honey	Howard F. Rhodes Williamsport	George Rhodes Williamsport	Alma C. Rhodes Williamsport	F. D. Covell Frederick	Byron Darby Hyattstown
6 sections amber to dark comb honey	Norris James Baldwin	Byron Darby Hyattstown	F. D. Covell Frederick	E. A. Andrews, Jr. Govans	John Lindner Cumberland
Beeswax (at least 5 lbs.)	John Lindner Cumberland	George Rhodes Williamsport	Mrs. J. E. Byers Hagerstown	L. B. Shearman Glenarm	A. C. M. Houck Clear Spring

*Honorable Mention, Best Display: E. A. Andrews, Jr., Govans
John Lindner, Cumberland

John Lindner, Cumberland

REPORT

OF THE

Maryland Vegetable Growers' Association

TWENTY-SECOND ANNUAL MEETING

Wednesday, January 15, 1941

Baltimore, Maryland

The twenty-second annual meeting was called to order by the Secretary, W. R. Ballard. Dr. C. H. Mahoney was presented and he outlined the vegetable research program of the Horticultural Department.

Vegetable Projects

1. *Fertilizer Placement.* New machines which place fertilizers in bands near the seed of plant at planting time are proving to be of great value in improvement of yields of some vegetables and in saving fertilizer.

2. *Tenderometer for Grading Canning Crops.* Extensive work on the machine in Maryland has enabled the canner to predict canned grades of peas from readings on the raw stock, which means that he can pay the farmer a fair price, based on quality, and the canner also eliminates guesswork on quality of the canned product. Other work is in progress on snap beans, sweet corn and lima beans.

3. *Freezing of Vegetables.* Several years of work on freezing varieties of peas and lima beans will enable the canner and grower and others to use only varieties suitable for freezing, as many varieties are unsuitable.

4. *Pea Varieties (Md. Bul. 427).* Careful variety tests with proper replications has established the yielding ability of varieties in Maryland and some sweet pea varieties adapted to Maryland can be used for canning and freezing.

5. *New Spinach Harvester.* The use of a machine to harvest spinach enables growers in Maryland to harvest economically certain canning types of spinach, which have been thoroughly tested under Maryland conditions.

6. *Control of Cantaloupe Quality.* The use of sprays or dusts to control cantaloupe defoliation has met with success under field conditions, which, in turn, has resulted in much improved quality of fruits.

7. *New Baby Lima Bean Varieties.* In searching for better lima beans, more suitable for freezing and canning, the Maryland Thick-Seed Variety was produced, which makes a particularly high quality in canned or frozen product. Other baby limas also have been introduced recently.

8. *Edible Soybeans.* Trial of the new edible soybeans in 1940 promises to show that these beans are well adapted for drying and canning in Maryland.

9. *Breeding New Cantaloupes.* Some new varieties of cantaloupes better adapted to Maryland, with high quality and some disease resistance, are coming out of the breeding mill at the Maryland station.

10. Trials to determine adaptation of various herbs and spices for Maryland conditions as a new cash crop.

11. Studies of rotation and cover crops for increasing organic matter content and raising the fertility level of vegetable soils.

12. Variety trials of cucumbers, snap beans, lima beans, cantaloupes, tomatoes, and edible soybeans.

13. Study to determine economic value of spraying or dusting tomatoes.

A discussion of spinach variety tests and the spinach cutting machine demonstration was led by H. B. Derrick, County Agent of Baltimore County. He introduced George Strattman, Jr., who stated that canners generally get spinach at very low prices, often below the cost of production. They wanted spinach without roots to reduce the labor of trimming. They, therefore, wanted the farmers to cut the spinach above the crown. The farmers wanted to know what effect this would have upon the returns from the crop. In order to determine these matters a committee of three growers, three commission men, two county agents and representatives from the University of Maryland was formed. The commission men wanted tests and the growers wanted a practical demonstration of the cutting machine. The variety test plots were established and on September 14, 1940, a field meeting was held at the farm of George Strattman, Sparrows Point, Maryland, to look over the varieties and to watch a demonstration of the cutting machine. About 100 persons were in attendance.

The cutting machine with rotary blades cuts two rows at a time, the product being elevated by an endless belt which deposits it in suitable containers. The machine is adjustable to cut at any height. The surface of the beds must be smooth for the blades would soon be dulled if they came in contact with the soil or struck stones. Five men are required to operate the machine, which is pulled by a tractor. A small motor to run the machine is independent of the tractor. The machine has a capacity of 1,200 bushels per day. The average laborer can cut 45 bushels per day, so it would take about 25 cutters to equal the output of the machine.

The market preference is for spinach cut below the crown and it appears that the machine would not be practical for cutting in this manner. If the market could be induced to handle the loose-leaf product, the machines could be used. County Agent Derrick stated that the critical labor situation might force the growers to adopt the machine for cutting even the market product. Smooth leaf types are not suitable for the market, although the canners found no difference in the quality of the canned product.

Mr. Hunter presented a report on the variety tests.

Spinach Canning Variety Trial

SPRING CROP

Variety	Mean Yield Per Plot (Average of 8) Pounds	Mean Yield Per Acre Pounds Leaf Spinach	Tons Per Acre—Leaf Spinach	Leaf Type
Viking	522	13,050	6.52	Smooth
Nobel	631	15,775	7.89	Smooth
Reselected Bloomsdale	630	15,750	7.88	Savoy
Aristocrat*	324	8,100	4.05	Savoy
Difference Required For Significance Odds 19 to 1	157.5	3,937	1.96	

*Very poor stand.

There were no significant differences in yield between any of the first three varieties. The lower yield of Viking was due to the lower yield in two plots out of the eight, but due to the fluctuation in yield between plots the difference in average yield between Viking and Reselected Bloomsdale cannot be attributed to any inherent difference in yielding ability of the two strains. The significantly lower yield of Aristocrat was due entirely to poor stands caused by low seed germination. The type was excellent and this type was later and darker green in color, when compared with Reselected Bloomsdale.

The spring of 1940 was not considered by spinach growers to be very favorable for heavy yields, but the results of the variety trials have shown that late spring spinach grown in rows will yield as heavily as broadcast spinach. The smooth leaf varieties did not outyield savoyed leaf spinach, but the first year's results demonstrate that this type of spinach can be grown commercially in this area if there is a demand for it.

Discussion of Cantaloupes

County Agent Stanley E. Day introduced the discussion of marketing Anne Arundel cantaloupes by stating that the Baltimore market is out-of-date and this begets a sloppy method of handling produce. Cantaloupes are handled mostly in open bushel baskets. The product

coming in from southern states comes in even worse shape, as it comes in mostly in bulk. This breaks down the price and lowers the quality. It makes a bad situation for the local growers. Last January a conference of commission men, brokers, and growers was called. After considerable acrimonious discussion, an experimental project in careful grading and packing was organized. A cardboard container costing 12½ cents, as opposed to the ordinary 3½ cent package, was agreed upon. The Lady Anne Arundel brand was adopted. Containers were packed with 6 U. S. Grade No. 1. It made a very attractive appearance, and it sold well, by the cooperating broker. The price ranged from 85 to 90 cents, as compared with 60 to 65 cents for the ordinary package.

The crop was of good quality, but the set was light, less than 1,000 boxes being marketed. The project was a success as far as it went, but more growers must adopt the plan to make an impression on the market. One of the great drawbacks is the lack of uniformity of the Anne Arundel county melons, and some research to correct this difficulty is badly needed. It was brought out that this lack of uniformity is due in a measure to the fact that most growers save their own seed.

An inquiry by one grower as to the cause of this lack of uniformity was answered by Dr. C. H. Mahoney. He stated that it was probably due to the inter-crossing of varieties. It should be possible to purify the strain in a relatively short time and a project to do this could be organized. Thomas H. White has developed a strain in which the Anne Arundel type has been crossed with the Pink Pearl Meat.

Other factors which influence the cantaloupe are soil conditions, fertilizer treatments and diseases.

In regard to the campaign to improve the Baltimore marketing facilities, County Agent Day stated that the committee met with the Advisory Legislative Committee on Terminal Market Facilities. It was felt that it was such a tremendous project that it would be a mistake to go off half-cocked. One of the most important questions is the location of such a market. The committee recommended to the Legislature that $10,000 be appropriated to make a thorough study of the situation. As a temporary solution, it was recommended that additional space near the Marsh Market be acquired.

AFTERNOON SESSION

At the afternoon session the regular order was temporarily suspended to allow for a consideration of the legislative program. With representatives of other horticultural interests present, the discussion was opened by Dr. C. H. Mahoney. F. Ridgely Todd was appointed temporary chairman and W. R. Ballard temporary secretary. Dr. T. B. Symons presented the legislative situation. After considerable discussion, a motion was adopted to combine the budgets and have representatives of each horticultural group meet with the executive committee of the Farm Bureau to present a unified budget to the legislature.

A motion that delegates from each horticultural group meet annually to consider matters of mutual interest was adopted. It was agreed that this should be called the Horticultural Council. It was further agreed that F. Ridgely Todd should continue as Chairman of the Council.

The regular order was then taken up and F. Ridgely Todd as delegate to the Northeastern Vegetable and Potato Council reported upon the activities of this organization. Nine states are represented and the main considerations are better methods of marketing and better methods of handling produce to avoid gluts on the market. The Council meets monthly and has handled large surpluses by advising the trade in advance.

Mr. Todd then introduced Dr. Ockey who represents the U. S. Department of Agriculture on the Council. He contributed the following statement.

During the past three years, vegetable growers in the Northeastern States have developed an organization called the Northeastern Vegetable and Potato Council, whose objective is to promote the vegetable industry in this area. States included in the membership of the Council range from Virginia to Maine and during the past year the attendance has averaged from 20 to 40 vegetable growers at the regular monthly meetings. The members of the Council represent organizations of vegetable growers in their respective States, so that through these State organizations the work of the Council is brought to the attention of vegetable growers throughout the area.

About two years ago the Council developed a marketing program which sought to improve the marketing of vegetables produced in the Northeastern States through securing greater cooperation between growers and representatives of the trade in the larger cities of this Northeastern region. The principal points in this program are as follows:

1. More timely and pertinent marketing information, which will assist growers and distributors in moving vegetables into consumption in a more orderly and efficient manner.
2. More standardization and uniformity in quality of products and in kind and size of containers.
3. Special merchandising campaigns, when needed, to attain more effective distribution of peak production.
4. Publicity and advertising to stimulate increased consumer consumption of vegetables.
5. Development of machinery to move surplus vegetables to other markets, when practicable.
6. Federal Surplus Commodities Corporation purchases of burdensome market surpluses.

Through the two seasons that the program has been in operation considerable progress has been made in developing this marketing program.

Market committees have been set up in Baltimore, New York City, Philadelphia, Syracuse, Buffalo, and Albany, New York; and in the Connecticut Valley to conduct the program locally. The cooperation of wholesale and retail distributors has been solicited in order to promote the sale of locally grown vegetables. The particular cooperation of the trade has been obtained in developing special merchandising campaigns timed to coincide with the peak movement of these crops to market. In conjunction with these special merchandising programs, home economists of the State Colleges and State Departments of Agriculture have developed consumer information giving the nutritive value of locally grown vegetables. This information has been released through newspapers and radio stations quite generally throughout the area.

It is recognized by all those concerned with this program that it is still in its experimental stages, but it is believed that it has great possibilities for improving the distribution of vegetable crops produced in the Northeastern States. A similar program has recently been started in six of the North Central States. It is anticipated that with the further development of this work regional cooperation between these various areas will be obtained to help develop solutions to some of the more important marketing problems confronting the vegetable industry.

Porter Hardy, delegate from Virginia, stated that there were a lot of changes ahead of the vegetable growers. In 1940, the sickest crop on the list in Virginia was spinach. The growers have no organization on the market to hold up their industry. Price fixing is in the offing unless the growers do something about the situation. They are now at the mercy of labor and the packaging groups and they must hold up their end. A program to get a fair return on investment must be adopted. A commodity agreement to control the volume of spinach may be the solution—an agreement with Texas and other shipping areas on the shipping period, this to be policed by the U. S. Department of Agriculture.

Mr. Ockey stated that marketing agreements have been in effect since 1933. Two-thirds of the growers must favor such an agreement, then all areas must come under its regulations.

Glenn Mather, President, Marketing Service Corporation, then gave a very interesting and instructive address.

WHAT CAN MODERN PACKAGING ACCOMPLISH FOR FRESH VEGETABLES?

GLENN MATHER, President Marketing Service Corporation

Since this subject is worded as a question, I am going to avoid making an attempt to give a complete answer. In fact, no general answer can be made. It is a question which can only be answered when applied to definite commodities, locations and types of market outlets. Considerable experience, however, has been accumulated which will help any group of growers to find a reasonably satisfactory answer.

Broadly speaking, all containers, packages or crates can be judged from two main viewpoints:

1. What merit does this container have as a carrier—a question of *utility* only.
2. Will this package serve as an *aid* to merchandising?

For the purpose of this discussion, I am omitting all of the other items such as material cost, assembly or preparation cost, ventilation, possibility of injury due to odors, or chemical reactions, and many other important factors. Naturally, a package which rates high in both utility and as a merchandising aid is better than one which is deficient in either of these classifications.

The phrase "an aid to merchandising" covers items such as efficient handling, eye appeal and descriptive or educational messages to and for consumers and to retail market employees. Each of these topics could be discussed probably for an hour or longer—but we will pass them by today with only a brief notice.

If you would ask any group of business men "does advertising pay?" most of them would answer "yes" without hesitation. The more thoughtful individuals would respond "yes, if the product is right and the type and amount of advertising is wisely handled!" There are many ways in which modern packaging can be utilized for advertising. Some will claim that most of the retail stores want mass displays of various commodities —that the shipping cases are emptied and discarded when displays are being installed. However, the advertising on the shipping cases makes an impression on the retail employees which has a favorable influence in many ways—even in the Super Markets where customers help themselves. On busy days, especially, the shipping cases are on display while shelves and bins are being refilled and most of the cases get used for carrying purchases to the homes.

Now, suppose we raise the question "How can growers secure for themselves the benefits of good merchandising and advertising?" The only satisfactory answer to this question is to form cooperative groups. You have probably heard this recommendation for many years, but I want to emphasize it as strongly as possible today.

One or two shippers cannot accomplish very much in this direction, even though their volume may rate very high as individual growers. To get the benefits of modern merchandising methods it is important to have a large, sustained volume for as long a season as possible. About 1936 the reputation of Idaho Potatoes had become so well established that a large proportion of consumers rated Idaho as the only large section producing fine potatoes. But the growers in the state of Maine decided to start a bally-hoo for Maine Potatoes. A well qualified Advertising Agency in New York was employed to lay out a plan and the plan was adopted. One of the first steps was to improve the handling methods in packing houses and warehouses at point of shipment. This reduced the percentage of spoilage considerably. The next big step was modern

packaging—then followed newspaper advertising and many types of advertising material to be set up in retail stores. It should be noted that the outstanding success of this program on Maine Potatoes was helped very greatly by modern packaging to attract attention to Maine Potatoes. The emphasis was placed on doing a beter job and selling more Maine Potatoes at a better price, rather than to cheapen the package to try to undersell. Many thousands of carloads of Maine Potatoes have been marketed in the last three years in small units, such as 10# bags, ½ bushel and ¼ bushel bags and boxes. Every box and bag carries with it the strong impression that Maine Potatoes are better, or more valuable, than other potatoes. Every sound business man is interested in reducing costs, but too often the emphasis is placed on price competition rather than capturing new markets and increasing the consumption of the product.

Out of this experience on Maine Potatoes, there have been some interesting developments. I will mention three:

First, the growers of sweet corn in Maine and other products appealed to the Advertising Agency for assistance when they had large surpluses. The Advertising Agency rendered prompt assistance in moving these surpluses without a heavy reduction in price, since they already had favorable contacts as a result of the work on potatoes.

Second, potato growers in all of the other New England states have united with the Maine growers during the last few months, so that the advertising and merchandizing can be handled on a regional basis instead of being limited to one state. This has obvious advantages from the standpoint of spreading or reducing advertising cost and curbing uncontrolled price competition from nearby states.

The third development, linked with the Maine potato program, occurred in Georgia. Georgia has been a large producer of peaches for many years and the Georgia growers were dissatisfied with the usual marketing methods. One of their leaders called the New York Advertising Agency by long distance from Georgia to New York to ask the Agency to take over the marketing problem, but the Advertising Agency refused! The advertising expert told the Georgia growers "if you will arrange a meeting with the growers in North and South Carolina, an effective plan could probably be worked out for the three states together." This was accomplished. By securing the help of State Marketing Officials and existing local associations, a plan was set up which was supervised by a Tri-State Peach Marketing Board, which has functioned very well during the last two years. The plan for three states was recommended so as to get sustained volume for several weeks so that the sales promotion work with wholesale and retail outlets could be continued and expanded as the shipping season moved northward.

Some plan of this sort could be started here in Maryland on various products—particularly sweet potatoes, and probably several other items.

I believe Stanley Day has described to you the very promising start made in 1940 on Anne Arundel cantaloupes.

Group plans of this sort naturally involve a great many incidental activities. One problem is to find an outlet for inferior grades or some way of keeping the poor quality off the market entirely. For example, there is a thriving Poultry Industry in Maryland and other Eastern States. Some experiments have been conducted indicating that sweet potatoes can be converted into poultry feed—a simple method of cooking and feeding, with favorable increases in egg production.

For another illustration, the recent developments in the Apple Industry are more or less familiar to growers everywhere. I do not have the figures for the entire United States, but in one single state alone—Michigan—processors sold more than $650,000.00 worth of apples in 1940 in the form of Apple Juice. The Apple Juice Industry in Michigan started from scratch four years ago! Pennsylvania, Maryland, West Virginia, Virginia and Washington have all benefited by the new market for juices.

It is conceivable that carrots and many other vegetables will be grown on a much larger scale for juices, and in all of these new developments modern packaging plays an important part.

I will now discuss briefly some of the packaging materials:

Cellophane—This is now available to Maryland growers at a much lower cost than a few years ago. The Du Pont Company at Wilmington, Delaware, and the Sylvania Industrial Corporation, with offices in New York but manufacturing at Fredericksburg, Virginia, have carried on a vast amount of research and promotional work. Some of the uses to which cellophane has been applied are absurd—others humorous and thousands of others of a very favorable nature. Cellophane tomato wraps have been used effectively by a very few shippers instead of the usual tissue. Whenever a car of these cellophane wrapped tomatoes shows up on the docks at large terminal markets, or at auction markets, the cellophane wrapped tomatoes gain favorable attention.

However, aside from gift packaging, cellophane (or cellulose acetate) has not been used for vegetables to any great extent. Experiments have been conducted on lettuce, asparagus, onions and other items, but none of the large shippers have adopted this material up to the present time on a permanent basis. Cellophane bags are being used for onions very effectively in modern retail markets, but usually the onions are placed in the bags by the retailer, not by the shipper.

Another very interesting material which will bear watching during the next few years is a rubber derivative called pliofilm, made by the Goodyear Pliofilm Company, Akron, Ohio. Pliofilm has been used for many non-perishable items during the last five years and some interesting

work is now being planned to adapt pliofilm to fresh fruits and vegetables in small units, such as 1 pint, 1½ pints, or 1 quart. The pliofilm is transparent and it is replacing cellophane for several products. Ordinary cellophane is not moisture proof. By adding a special lacquer or treatment, the cellophane can be made moisture proof. Since pliofilm is a rubber derivative it is moisture proof without any special treatment and it may resist breaking down from juices or plant life more successfully than moisture proof cellophane.

Of course, you are familiar with the tremendous growth of frozen foods. Here is another example of how modern packaging has played an important part in marketing vegetables and fruits.

When your products are canned, heat is used to sterilize. When products are frozen, the organic changes are arrested until the products are allowed to thaw. The hope that pliofilm affords is that organic change is slowed down and moisture loss is diminished to the extent that fresh vegetables can be kept fresh without cooking or freezing in transparent wrappings for a period of one week, two weeks, three weeks or even longer. Experiments have been conducted on beans, broccoli, mushrooms and other items, but the volume is not yet large enough to make any definite statement regarding cost and practicability.

Shredded paper is being used in steadily increasing quantities. Of course, there are many kinds, such as the shredded newspaper you have seen in boxes of bananas, shredded waxed tissue used in apple boxes, and others. Clean printed, unused newspaper can be bought in one ton quantities at a little less than 1c per pound. Shredded oil treated colored tissue in small quantities can be bought for 10 to 12c per pound and, of course, only a small fraction of a pound is required for each package. Incidentally, the oil treated tissue shredded paper is used to prevent scald in apples—not merely for decorative purposes.

Excelsior could be used to good advantage on a much larger scale than at present. The cost in small lots runs from 1c to 2c per pound. You have seen it used for fancy melons and the larger varieties such as Honeydews and Persians.

Labels—Printed or lithographed labels for boxes have reached a high degree of perfection. One of the newer types of labeling is the individual label for each piece of produce, placed directly on the produce to carry the brand identification into the bulk displays in the retail store and then into the home of the consumer. For this individual branding the decalcomania (or transfer) is used, usually about the size of a quarter or half-dollar. The decal is a film like substance and it sticks so closely that no unnscrupulous distributor could collect the labels from high-class produce and transfer them to cheaper produce. Ordinary paper labels have been tried, but a large percentage failed to stick during shipping and unpacking at retail markets. Incidentally, we have had some interesting experience recently on edible decals for eggs and dressed poultry. The cost of decals will usually average from 3 to 20 labels per cent in sizes mostly used for vegetables and fruits. However, the process of manufac-

turing decals is so complicated that orders cannot be accepted for less than 250,000 labels.

Bags—The steady increase in the use of net bags and paper bags is so well known that I will merely mention this as another evidence of the important part modern packaging can play in increasing sales volume. From the shipper's standpoint, the chief difficulty with bags is the cost, the lack of ventilation in the center of loads, and the absence of protection from crushing.

Boxes—We classify boxes, or cases, in three divisions as follows:

1. Commercial sizes, or modifications thereof
2. Gift boxes
3. Consumer unit packages

The gift boxes are used primarily for such items as apples, oranges, grapefruits, peaches and pears—not yet used to any large extent for vegetables. However, I am expecting someone to come along any day with the urge to package some of the high-class vegetables as gifts!

Consumer Unit Packaging of potatoes has been making some excellent progress during the last three years. The low cost per pound of potatoes makes this item more of a problem from the packaging standpoint than some of the other vegetables. Many thousands of dollars have been spent for research and commercial demonstration of Consumer Unit Packaging —some attempts unsuccessful and very costly—others highly successful. Consumer Unit Packaging is much too large a subject to discuss this afternoon.

The boxes for commercial sizes or modifications thereof have recently been adapted to vegetables as illustrated by some of the specimens displayed here today. Oddly enough, the fibre box industry has gone along for many years making only one general type of paper box called the slotted carton style with four flaps on the bottom and four flaps on the top, which must be taped, stitched or sealed with an adhesive. This is the type of box used for canned foods, cereals, soaps and many other items. The slotted carton type is not satisfactory for fresh vegetables and fruits for various reasons such as:

1. The box cannot be opened for inspection and closed again easily without disfigurement.
2. There is no flexibility in depth to allow for minor variations in the size of produce.
3. Inadequate stacking strength.

It should be freely admitted that boxboard will lose part of its strength in a moist atmosphere such as occurs in rainy weather or with refrigeration and temperature contrasts or a concentration of plant life in a car or truck. This loss of strength may be approximately 50% under certain conditions. For this reason, all paper boxboard for fresh vegetables or fruits should be made more than twice as strong as is necessary under ordinary conditions, so that there will be a margin of safety under extreme conditions.

We now have available boxes with removable covers which meet all of the general requirements for most of the fruits and vegetables. We do not attempt to use this material for products which are to be packed with water ice in the package, or on top of the load, like the usual method of handling lettuce, but it is very possible that by pre-cooling, modern packaging will soon eliminate the use of water ice in transit.

To summarize, I want to emphasize again that the best way to build a good market at satisfactory price levels is to combine your volume in a group organization, large enough to exercise quality control and continuous shipments for as long a season as possible. You can get assistance from your County Agent and State Marketing Officials in setting up a general plan of organization. The program can then be worked out with the assistance of men who have had experience in retail merchandising of agricultural products. This leads to standardization, and, sometimes a few innovations, together with economies in purchasing your supplies on a much larger volume than would be possible for individual growers. Along with the plan, you will need centrally located packing house facilities and someone to act as a sales manager. All of these things can be accomplished through organization.

One shipper dealing alone has little power. He takes what is offered, or goes without a sale. A dozen shippers, or 40 or 50 working together can meet the buyers on even terms. This is called "coordinated marketing." The organization represents the collective voice of the group—and the work is planned and executed on an efficient, business-like basis, with larger potential markets and usually greater profits.

And now, we can boil this down to a formula—"*Modern Packaging plus Group or Regional Marketing leads to better returns for Growers.*"

Following the delivery of this talk, each of the following cases were displayed, with brief comments on each:

Cantaloupe Box—Anne Arundel Brand

Cucumber Box 1 1/10 bu.—Salisbury, Md.

30 lb. Tomato Lug

15 lb. Florida Potato Box

⅘ bu. Tangerine—Mather Citrus Case

Gift Box—15 Apples—Washington

"Fruit Cradle"—Washington Apple Box "Blue Goose" Brand

1⅛ bu. Eastern Apple Box—Detachable cover and wire clamps.

A feature of considerable interest was contributed by the National Fertilizer Association. This was the showing of the motion picture, "Putting Plant Food to Work." Many of the scenes were taken on Maryland farms and the local color added greatly to the interest.

The Resolutions Committee presented the following resolutions which were endorsed by the association:

Resolutions of the Maryland Vegetable Growers' Association to The Maryland Farm Bureau, Inc.

Food Stamp Plan:

We endorse the broad humanitarian objectives of the Stamp Plan for disposing of agricultural surpluses and its continuation and extension to include towns and cities in Maryland not being served at the present time.

Direct Surplus Purchases:

Baltimore markets having not materially benefited from the Direct Purchase Program to date and particularly during the peak seasons of certain local fresh fruits and vegetables, our market often becomes unnecessarily depressed by minor surpluses, and direct purchases at the proper time would have a tremendous stabilizing effect. Therefore, we urge that immediate steps be taken by the proper officials to designate the Baltimore market as a purchase point for perishable products in distress.

Baltimore Market:

In view of the chaotic condition of the vegetable industry and diminishing returns to growers; and due to the high pressure merchandising program of certain distribution agencies handling fruit and vegetables, it becomes necessary that steps be taken to bring about organization and coordination of effort among Maryland producers. It has become further necessary that there be better cooperation and coordination of effort on the part of Maryland producers with producers in other states. Therefore, it is urged that the State of Maryland include an appropriation of $7,500.00 in the supplemental budget, specifically designated for the promotion and development of the Maryland fruit and vegetable industry.

We urgently request that the Maryland Farm Bureau appoint a special committee to confer with the Governor on this particular appropriation and some means be worked out whereby funds are available to start work not later than May 1st, 1941.

Representation:

The Maryland Vegetable Growers Association continues to send representatives to the Northeastern Potato and Vegetable Council and ask the Maryland Farm Bureau to continue their financial support.

The treasurer's books audited by William G. Lynch shows a balance on hand as of December 31, 1940 of $105.05.

The following officers were elected by the Association:

President—H. J. W. Rayner, Salisbury.
Vice-President—Clay Whiteford, Whiteford.
Secretary-Treasurer—W. R. Ballard, College Park.
Director (for 3 years)—C. C. Phillips, Quantico.
Director for Farm Bureau—George H. Strattman, Sparrows Pt.
Delegate to Farm Bureau—Egbert Hawkins, Harmans.
Director for Agricultural Corporation—William G. Lynch, Dundalk.

Prize Winners at the State Potato and Vegetable Show
Lord Baltimore Hotel
Baltimore, Md.—January 15, 16, 1941

GROUP I—ADULT CERTIFIED—

Early or Medium Early Variety:

Class I—1. J. G. Callis, Accident.
2. Foster Yost, Accident.
3. Willis Silber.
4. Junior Schlosnagle, Accident.
5. W. A. Ward, Pocomoke.

Smooth Rural:

Class II—1. Robert Miller, Accident.
2. Foster Yost, Accident.
3. Clark Schlosnagle, Accident.
4. L. Grower, Accident.
5. William Fratz, Accident.

Russet Rural:

Class III—1. Robert DeBerry, Oakland.
2. C. F. Kelley, Oakland.
3. Richard DeBerry, Oakland.

Dakota Red:

Class IV—1. George Buckingham, Marriottsville.
2. Evans Chaney, Laurel.
3. John R. Jehle, Hyattsville.

Any Other Variety:

Class V—1. Evans Chaney, Laurel.
2. John R. Jehle, Hyattsville.
3. Robert Miller, Accident.
4. William DeBerry, Oakland.
5. Richard DeBerry, Oakland.
6. Robert DeBerry, Oakland.

Sweet Potatoes, Any Variety:

Class VI—1. Ed. Williams, Salisbury.
2. Rayner Bros., Salisbury.
3. J. Willard Toadvine, Salisbury.
4. R. T. Williams,, Salisbury.
5. Carl H. Smith, Salisbury.

Irish Cobbler:

Class VII—1. Arthur L. Harris, Rohersville.
2. Cecil L. Harris, Rohersville.
3. Howard Burtner, Keedysville.
4. Leroy Burtner, Sharpsburg.
5. R. W. Burtner, Sharpsburg.
6. Wade Brittingham, Salisbury.

GROUP III—4-H CLUB CERTIFIED AND COMMERCIAL—

Early Varieties:

Class XIV—1. Edwin Burtner, Keedysville.
2. William Hines, Jr., Brinklow.
3. Roger Burtner, Keedysville.

Medium Late Varieties:

Class XV—1. Edwin Burtner, Keedysville.
2. Roger Burtner, Keedysville.

Late Varieties:

Class XVI—1. Robert Miller, Accident.
2. Clark Kolb, Accident.
3. Junior Schlosnagle.
4. C. F. Jones, Crownsville.
5. Lawrence Grower, Accident.
6. Guy Broadwater, Accident.

GROUP IV—F. F. A. CERTIFIED AND COMMERCIAL—

Early Varieties:

Class XVII—1. Gerald Harris, Rohersville.
2. Walden Burtner, Boonsboro.
3. Clifton Link, Ednor.
4. Howard C. Dryden, Newark.

Rurals ('Smooth or Russet):

Class XVIII—1. Waldon Burtner, Boonsboro.

Late Varieties:

Class XIX—1. Robert Miller, Accident.
2. Orvin Schlosnagle, Accident.
3. Clifton Link, Jr., Ednor.
4. Guy Broadwater, Accident.
5. Guerney Kolb, Accident.
6. Earl Schultz, Hampstead.

Any Variety:

Class XX—1. J. W. Toadvine, Salisbury.
2. Thomas Mumford, Salisbury.
3. Edgar Williams, Salisbury.
4. C. Smith, Salisbury.
5. W. R. Ellis, Salisbury.
6. C. Smith, Salisbury.

VEGETABLE CLASSES

Class IV—*ONIONS*

Jacob Burtner, Boonsboro.....1st Prize
O. W. Burtner, Keedysville.....2nd Prize
Howard Burtner, Keedysville.....3rd Prize

Class VIII—*CARROTS*

Elmer Koppelman, Raspeburg.....1st Prize
Jacob Burtner, Boonsboro.....2nd Prize
Mat Harding, Cambridge.....3rd Prize
R. W. Burtner, Sharpsburg.....4th Prize

Class X—*PARSNIPS*

Elmer Koppelman, Raspeburg.....1st Prize
R. W. Burtner, Sharpsburg.....2nd Prize
Leroy Burtner, Sharpsburg.....3rd Prize

Class XI—*TURNIPS*

Howard Burtner, Keedysville.....1st Prize
Leroy Burtner, Sharpsburg.....2nd Prize
R. W. Burtner, Sharpsburg.....3rd Prize
Clark Crawford, Keedysville.....4th Prize
Mat Harding, Cambridge.....5th Prize

Class XIII—*SQUASH*

H. W. Burtner, Keedysville.....1st Prize
R. W. Burtner, Sharpsburg.....2nd Prize

REPORT

OF THE

Maryland Stockmen's Association

TWELFTH ANNUAL MEETING

January 11, 1941

Baltimore, Maryland

Mr. Edward N. Derr, President, opened the Twelfth Annual Meeting of the Maryland Stockmen's Association in the Lord Baltimore Hotel, Baltimore, Maryland.

PRESIDENT'S ADDRESS

EDWARD N. DERR

I take pride in welcoming you to our Twelfth Annual Meeting. It is, in my opinion, a great honor to be President of this Association, but I assure you, I am not much of a public speaker. This being my first experience, I trust you will pardon any mistakes I may make, and I want all of you to feel free to offer any comments or suggestions.

I regret that I have been unable to be more active in the affairs of the Association during the past year, but it has been an unusually busy year for me, as I moved to another farm in the spring, where I built a large dairy barn, which required practically all of my time.

The members of the Association have been doing great things. In February, the Maryland Swine Growers' Association held their annual consignment sale at the Timonium Fair Grounds; in March of the last three years the Frederick County Percheron Association has promoted "Percheron Day." It is believed that 1940 was the most successful of all Percheron Days. Attendance reached over 1,000 people, with visitors from every state in the east. This year on March 10 they are holding their Fourth Annual Percheron Day, when a public auction will also be held to which the consignment of 27 mares or fillies and 3 stallions has been guaranteed.

The Aberdeen-Angus Breeders' Association held its Annual Spring Show and Sale at the Frederick Fair Grounds on May 6. A total of 66 head were sold for an average of $311.66.

Reports from Mr. W. R. Harvey, Manager, Baltimore Livestock Show, indicate that the Twelfth Annual Baltimore Livestock Show was a huge success, with probably the best sale ever held in connection with the Show.

In closing, I hope that the year 1941 will see even greater accomplishments by Maryland stockmen.

MR. DERR: At this time I would like to appoint the following nominating committee for consideration of officers for the next year: W. R. Harvey, Chairman; Miss Agnes Tilghman; W. Alan McGregor. While the nominating committee is in conference, I think it would be well to have the report of our Secretary-Treasurer, Mr. James B. Outhouse.

REPORT OF SECRETARY-TREASURER

J. B. OUTHOUSE

The Annual Meeting was held last year on January 10. The program of the meeting was printed in the Annual Report and a copy mailed to each member of the Association.

The 1940 banquet held in connection with our annual meeting was attended by 83 people and was held at the Longfellow Hotel at 6:30 P. M.

There were 131 members in the Association during 1940. This is a decrease of 34 members from 1939, when we had a total of 165. The News Letter was sent out every two months during the year and contained the usual items of interest concerning Maryland breeders.

I want to thank all of you who sent in timely items of interest for incorporating in our News Letters and I hope you will continue to render this support during the coming year. We would like to urge more members to send in news items from time to time.

A meeting of the officers and executive committee was called on December 12, 1940, to make arrangements for the annual meeting. Five members were present. It was the consensus of opinion that the Association discontinue presenting cups in the open sheep and 4-H swine classes at the Timonium State Fair and instead present medals to the 4-H Club members showing the winning pen of lambs and pigs in the Maryland classes at the Baltimore Livestock Show.

As of this date the financial report of the Association is as follows:

Balance forward from 1939		$116.87
Receipts—131 memberships @$1.00		131.00
		$247.87
Expenditures:		
1940 banquet expenses	$ 3.30	
Postage for news letters and membership cards	39.10	
Minute book and envelopes	5.35	
Dues—Md. Farm Bureau Federation	20.00	
1941 banquet expenses	8.00	
		75.75
Balance on hand as of January 15, 1941		$172.12

MR. DERR: You have heard the Secretary's report. What is your pleasure? It was moved, seconded, and unanimously carried that this report, as read, be accepted.

MR. DERR: Our first speaker on the program this morning is Guy E. Harmon, Manager of Blakeford Farms, Queenstown, Maryland, who will address us on "Breeding Sheep for Profit."

BREEDING SHEEP FOR PROFIT

GUY E. HARMON

A few weeks ago I was asked by our good friend, Jim Outhouse, to give a talk on the above subject, which I agreed to do. After giving careful thought to the subject, I realized that I was tackling what seemed to me a very hard and almost impossible proposition, and there was every chance that I would make a failure of it. Again, I realized that if I did know how to "Breed Sheep for a Profit" I might be giving away a secret.

I will not attempt to give you a lot of figures because I do not have them, and, on the other hand, I realize how quickly a lot of figures can be forgotten. However, I will attempt to give you some facts which not only apply to sheep breeding but to any class of livestock. I have had a few years of experience in breeding sheep and I have often looked at our books to see how much profit we had made at the end of the year. Well, the first few years everything looked rather bad and after "pinching" myself and asking "Am I doing the work properly?" I came to the conclusion that I was doing the work in the worst possible manner, and I believe many of our farmers should ask themselves this same question and then either attempt to do a good job or give up breeding sheep for profit. And this applies to every class of livestock—am I doing the best job possible?

In the year 1936 I selected practically all of the Southdowns for our breeding work at Blakeford and bought from the better flocks in Canada the best animals available. In 1937 an importation of ten ewes and a ram from the Luton Hoo flock in England was made.

After getting these high-class animals on our farm I found that I had just an ordinary man who never had any experience in sheep raising, and although I had good shelter for them you can imagine what the results were. After two years I could soon tell you how not to breed sheep for profit. I am mentioning these facts so that you can see how easily mistakes can be made.

Therefore, I would say the first and most important item to be considered before starting in the sheep business is—make sure you like and know sheep, and, if you must hire some one, get a good man. To my mind a good shepherd is half the battle, because everything depends on him. He will see that the ewes are not too fat at breeding time, that they have been flushed the proper time before breeding, and that

the lambing quarters are warm, clean and comfortable. Not meaning to forget the ram, he will see that he is in the proper condition for breeding a flock of ewes. A good shepherd, or caretaker, will never leave his ewes at lambing time, and think what money can be made by saving all of the lambs.

Breeding sheep for profit depends largely on the proper feed, care and management of the flock at all times. This means simply that the breeding flock should have proper feed and care before and after lambing, plenty of good pasture, control of parasites, good advertising and then selling a good animal for the right price. Always remember that a satisfied customer is the best advertising anyone can have, and a dissatisfied customer will always tell the other fellow before he tells you.

Profit from sheep, as well as other classes of livestock, depends largely on how good a foundation you have and how carefully you select your breeding stock. To my mind, the breeder who has his eyes wide open while culling and does not draw his punches, will be the most successful. The ewes should be healthy and vigorous, sound in every respect, and good milkers. Be sure to discard non-breeders and poor milkers.

In building a profitable flock, it is very important to get ewes that are real milk producers.

I know from experience that we cannot raise good colts, good beef animals or good hogs unless the mothers are real milk producers. I am sure you have all heard the remark "This mare is a good mother," and we always take it for granted that she was a good milker. A good ewe will give around 200 lbs. of milk a year, but she cannot do this without proper feed and care. This does not mean that she must have a lot of grain, but good pasture or legume hay. Our shepherd will watch our haying operations closely and, when our second cutting of clover is ready, he will always ask, "Can I have enough of that hay for my sheep?" Well, it certainly makes splendid hay for sheep and gives excellent results. Always remember the rate of gains made by the lambs depends more on the amount of milk the ewes produce than on any other factor. In other words, be sure your ewe is a good milker and then feed properly so she can make milk.

After the lambs have been marked and docked they can be moved into larger quarters. Creep-feeding the lambs is also very important if a breeder expects to make any profit.

Cracked corn and crushed oats, with bran and pea size linseed meal, make a good mixture for lambs.

I am sure all of the facts I have stated can be applied to "Breeding Sheep for Profit" right here in our State. Of course, on the Eastern Shore of Maryland we are troubled a great deal with worms and parasites. Parasites can be controlled by rotation of pastures and drenching the sheep with a mixture of 1 oz. copper sulphate to 2 qts.

of water, giving 3 ozs. of this mixture, depending on size and age. This must be done once a month.

In 1940, at Blakeford 33 ewes were bred and 3 rams were used; 32 ewes lambed giving us 45 live lambs, or nearly 139%. Most of the lambs came during January, February and March. Two lambs were born dead. No lambs were lost until August when two that were being fitted to show at Timonium died from being over-heated. In the Spring of 1940 we sheared 53 sheep, average being 6½ lbs. per fleece. We sold this for $115.00.

We now have a ready market for bred Southdown ewes and good rams. The wethers are sold to 4-H Club Boys and some used for meat here on the farm. Our sheep made us a small profit in 1940 and fit very nicely into our livestock breeding program.

MR. DERR: Thank you, Mr. Harmon. Before presenting the next speaker, we will hear from the nominating committee.

Chairman Harvey gave the following report:

President: Maguire Mattingly, Pearson.

Vice-President: Richard C. Riggs, Catonsville.

Secretary-Treasurer: James B. Outhouse, College Park.

Assistant Secretary-Treasurer: Miss Rubye M. Bresnahan, College Park.

Executive Committee: W. Alan McGregor, Worton; Guy E. Harmon, Queenstown; Richard C. Riggs, Catonsville; W. E. Hunt, Schluderberg-Kurdle Co., Baltimore; George D. McRae, Phoenix.

Delegate to Annual Meeting of Maryland Agricultural Society: William J. Hines, Brinklow.

Director to Farm Bureau Federation: J. Herbert Snyder, Union Bridge.

Delegate to Annual Meeting of Farm Bureau Federation: John E. Muncaster, Derwood.

Motion was made, seconded, and unanimously carried that above officers be elected for the year 1941.

MR. DERR: Mr. Dan Wight, Monocacy Farms, Frederick, will now address us on "Horse Power on the Farm."

HORSE POWER ON THE FARM

DAN WIGHT

Mechanization is so popular today and in almost all businesses is recognized to be a way of lowering costs that a great many people naturally assume it would hold true in farming and they do not require any proof. Tractor people who are most able salesmen and capable and lavish advertisers are very effective in promoting this point of view. Did a tractor salesman ever sit down and show the cost for a whole year? This general feeling leads a speaker, on the subject of horse power, to

assume either a defensive or a challenging attitude towards his audience. Neither attitude is conducive to making a point.

On the other side of the subject, it is absolutely fair to say that almost all the good, hard, practical dirt farmers know that horse power is the more economical in the long run. The subject has been bandied about a great deal, but I feel that in the last year a lot of good, substantial reasoning has come out of discussions of this mooted question. We can see better now, I think, than we could in the past.

First of all, the job of the U. S. Department of Agriculture teachers and extension people, and those trying to influence farmers should be towards providing them with ideas that give them a sound, long-term economic way of doing things and their objectives should not be to get farmers set so that they can make a killing in high-price years. The objectives should be so they can make good money in high-price years and be able to keep solvent through the toughest years. The same advice should be given to a manufacturer or a merchant.

To my mind, there is no question but that the great preponderance of evidence is that horse power gives farmers a way of keeping going under harder conditions than tractors do.

The following points these out briefly:

Mr. Moscript, of Minnesota, farms with over 30 horses. He uses no tractors in his fields. He is one of the outstanding dairymen, livestockmen, and farmers in Minnesota and is one of their most substantial citizens. There is another man in Minnesota who does the same thing. Fred Shell, of Kansas, handles his large farming operations the same way. Clarence Emerson, a large farmer in Iowa, does the same way and there are a great many others. I just speak of these from my own experience. These men are dirt farmers; they have not made their money somewhere else. They are not horse breeders—they are farmers using horse power and marketing their excess production. All of them are good, substantial citizens. I am not sure, but I do not think they were the people who asked for Government aid.

Joe Page, one of the best dairymen in Frederick County, up to recently a worker of grade Percherons (now a purebred breeder), tells me in a great many years he has netted more from his horses than from his dairy.

An insurance man who handles Iowa says that farmers using horse power pay their premiums—that farmers using tractors do not pay their premiums and are still paying the tractor company.

The man in charge of the largest unit of farms in the United States did not come out flatly with it, but every inference of his talk was that up to 200 acres of cultivated land there was no question that horse power was the cheaper.

It is said that Federal Land Bank Officials say, and I am quite sure it is true, that the men who farm with horse power only pay their debts the quickest; the man who has a tractor but uses it only as little as

possible, next quickest; and the man who farms mostly with a tractor pays his debts the slowest. I do know specifically of a man who got a Government loan and one of the conditions was that he use horse power.

Figures published in an Illinois Bulletin clearly pointed to horses being more economical on farms that were not exceptionally large and show that the out-of-pocket operating cost of over 1,300 farms they studied in 1930 was $401 per hundred acres of cultivated land, where horse power alone was used, and $690 per hundred acres of cultivated land for general purpose tractor farms.

A milk distributor from Flint, Michigan, who uses both milk trucks and milk wagons, told me that where his distance between deliveries was short his per quart cost of delivering milk was one-third cheaper with horses than with trucks.

Our own figures at Monocacy Farms charging feed, extra wages, advertising, veterinary bills, and everything of that sort to horse power and inventorying our stock at a most reasonable figure for purebreds, shows in the 6 years following 1933 on 933 acres, of which 593 is in cultivation, that it cost just an average of $621 a year or $107 per hundred acres of cultivated land. In addition, with this same horse power we have seeded, limed, and fertilized every acre of the 330 acres in grass, plus 150 additional acres of grass land that we own. We, ourselves, furnish the power on these 1,080 acres; own 1 tractor that is used entirely for belt work. On the other farms of Monocacy Farms the tenants supply the power and I can not furnish figures for them.

These are only power figures for the farms, but they do compare to power figures alone in the Illinois Bulletin that shows $300-$350 per 100 acres for tractor farms.

I do not advocate going into the horse raising business as a business in itself (we do not own a mare or stallion that does not work regularly), but from my own experience and from the evidence I can get, I certainly do advocate the exclusive use of horse power on farms and believe that the better the stock the cheaper the power.

The most recent statistical work on this subject that I can find is a presentation by the Bureau of Animal Industry before the Temporary National Economic Committee published April 23, 1940, and it is headed "Data on mechanization in agriculture in various areas of the nation and the relation of mechanization to efficiency in production and to farm income."

This bulletin shows that on a 320 acre wheat farm in Kansas, it cost the man using tractor power $400 more than the man using horse power and that his net for the year was $11.00 lower on the tractor farm than on the horse power farm. This was with wheat at 80 cents per bushel and labor $2.50 per day. Just think what would have happened if we had had no wheat loan and the price might have been 40 cents per bushel. The bulletin goes on to say "the significant difference to the wheat farmer is that the expense for operating and replacing equipment

is no longer a variable cost, which varies directly with his production and consequently with his income. The necessity for meeting these payments in years when incomes are low has added to the agricultural distress in the drought areas."

The bulletin also shows the comparative costs of operating a 200 acre cornbelt farm and it shows it to be $200 cheaper for horse power, but that the net income was $75 less on the horse farm. In this case, it does not state the price of corn but I assume it is the loan value which is about 55 cents per bushel. Again consider the result if corn sold down to 30 or 40 cents per bushel. After these figures the bulletin goes on to say "mechanization of the farm has added to the dependence of the farm operator on prevailing prices and on income from his sale of crops and livestock." The conclusion is that "to achieve saving through the use of mechanical power, the farmer must accept a higher degree of economic risks."

They come to about the same conclusion on operating a cotton plantation.

From now on the subject is a little different but it is to my mind extremely important. It is based on the following facts:

The main objectives of the Agricultural Adjustment Act are the reduction of surplus farm products, the finding of new uses for these surpluses, the conservation of our soil resources.

Fact 2: Human beings and horses and mules are the only "final consumers" of farm products.

These facts are recognized by the Soil Conservation Act and they recognize that horses do consume the surplus and even state that the area of surplus production is about the same as the area that would be needed to produce the feed and pasture for the horse population loss of the last 20 years and do recognize that the use of horses does conserve the soil.

Yet with all this the Soil Conservation Act actually penalizes the use of horse power, because a working horse takes about 2 acres more crop land and 2 acres more pasture to support him and therefore with his acreage of crop land limited the horse farmer has that amount of acreage from which he can not sell the product in the form of grain or milk or beef, and this handicap is given the horse farmer even though through horses alone can we permanently keep these crops from competing in our grain markets, beef markets, or in our dairy markets.

In order that this situation shall not get worse and shall improve, the following resolution is being circulated all over the nation and I wish to submit it to you. It seems to me the farmers using horse power and those not using it should be in favor of this move. While I ask for a proposer of this motion and a seconder and a favorable vote, if possible, please do recognize that no one's feeling will be in the least hurt if the most critical comments are made of it.

In closing I want to say that while I feel sure the use of horses faces stiff competition, yet I believe all the true facts are on the side of the horse and that in the long run they will maintain and increase their position in the farming business.

At this point Mr. Wight introduced the following resolution, which was adopted by the Association:

RESOLUTION FOR HORSE AND MULE USERS

"*Whereas:* The main objectives of the Agricultural Adjustment Act are (a) the reduction of surplus farm production (b) the finding of new uses for these surpluses, and (c) the conservation of our soil resources; and

"*Whereas:* Publications of the Department of Agriculture and/or the AAA state that human beings and horses and mules are the only 'final consumers' of products of the farm; and

"*Whereas:* Publications by the same authorities state that the land freed by the lesser use of horses and mules over the last twenty years is about equal to the area now causing the over-production of farm crops; and

"*Whereas:* Crops consumed by horses and mules never reappear in any form on the food or fiber markets; and

"*Whereas:* Horses and mules get half or more of their feed from dense-growing, sod-forming, soil-building and soil-conserving crops; and

"*Whereas:* The manure produced by horses and mules is returned to the land to furnish fertility and humus; and

"*Whereas:* No recognition is given to these facts in the present administration of the Soil Conservation or Agricultural Adjustment Acts;

"NOW, THEREFORE, on the 11th day of January, 1941, this organization, The Maryland Stockmen's Association, in the belief that furtherance of the use of animal power on farms is the soundest base on which these objectives can be brought about, hereby recommends that farmers who are using horses or mules, to the extent of at least one such mature animal for each 25 acres of crop land, be allowed two acres increase in their present allotment of soil depleting crops per horse or mule kept on their farm and that two animals under 2 years of age be considered equivalent to one mature animal. Should this particular form of recognition of the true value of horse power be, for any reason unusable, then this organization recommends that the same result be brought about in some other manner."

MR. DERR: Our next speaker on this morning's program is Mr. Richard Riggs, Foxhall Farms, Catonsville, Maryland. Mr. Riggs will address us on "The Adaptability and Expansion of Beef Cattle in Maryland."

THE ADAPTABILITY AND EXPANSION OF BEEF CATTLE IN MARYLAND

RICHARD C. RIGGS

When I was asked by our secretary to speak at this meeting, I hesitated in accepting, as I certainly do not consider myself qualified to tell a group of experienced live stock men how to produce good beef. Because the year 1940 has probably been the most successful one every enjoyed by beef cattle in the State of Maryland, I did feel that it would be a good idea to devote a few minutes of this meeting's time to consideration of the reasons for the expansion of this type of livestock in the state and the manner in which its success has manifested itself during the past year.

Probably no other type of livestock made greater advances in our state during the year 1940 than did beef cattle. This statement may be questioned by some, but I believe that when all the phases of the beef industry are considered, you will agree that the beef breeds at last have taken their rightful place in the agricultural set-up of Maryland.

Up until a few years ago there were not many farms in Maryland where the breeding of beef cattle was considered an important part in the farm program. There were, of course, a few breeding farms, but for the most part the steers fed in Maryland were brought in from the West. There were no classes for the beef breeds in the fairs of the State, and few of the fat steers in the Livestock Show were Maryland bred. Gradually, some Maryland farmers realized that this state is naturally endowed with many qualities, ideally suited to beef production, especially to the better type of beef. Maryland, with her limited area, will never be able to compete with some other sections of the country in quantity, but there is no reason why she should not take a leading place in quality. I, for one, believe that our beef cattle are well on their way toward this goal.

This fall I drove out to Texas and while there visited a number of the better known Hereford ranches. Although I saw a lot of good cattle and learned a great deal, one of the most important things to me was that I gained a greater appreciation of our good Maryland country. One ranch had just moved from a part of Texas, where they had to allow forty acres of range land to each animal, into a new part where only twenty acres were needed. The owner of the ranch showed me with great pride his pastures, consisting of bare ground, brown grass and yellowish weeds. Each field had its own little man-made water hole, and the rain of months before was collected to last the cattle through the dry season, if they were lucky. Needless to say that when I came over the Alleghany Mountains to Virginia and Maryland our green pastures and running streams looked better than ever. We can grow good grass in Maryland with very little care and there probably is no greater help to a cattle breeder than good grass. The grass is not only good for the cattle, but the cattle are good for the grass. Beef cattle are probably

as efficient consumers of pasturage as any type of animal we can raise. Fortunately for us throughout most of Maryland, there is plenty of water to be found, both in our streams and in our rain-fall. Of course, we have an occasional dry period, but at its worst it is hardly as disastrous as the normal dry weather out West. For the most part, our soil is fertile, and we can raise plenty of good crops of corn and barley. These grains, along with our good hay crops of clover, alfalfa and lespedeza, give us a good start on our way to producing good beef cattle. Maryland's climate is comparatively favorable to the production of beef because of its rather long grazing periods and open winters.

Perhaps the greatest asset that Maryland has to offer for beef men is its location. We are near enough to the big cities of the East so that our finished animals can reach good markets with very small shipping expense and with a minimum of shrinkage in weight. For our breeding herds the market is equally good. The East and South are two of the sections of the United States where the beef population is growing. If the quality of our Maryland herds continues to improve as it has recently, this state should be one of the main sources of good breeding stock for these sections.

Maryland has been a dairy state for a great many years, and probably will continue to be one; in fact, so much of a dairy state that overproduction in dairy products has at times been quite a problem. Until recently nearly every farmer planned to ship a little milk. It seems to me that the trend now is to consider taking up beef production instead of dairying, and I should think that dairymen as a whole would be glad of it. It has been the experience of our farm that a large proportion of the inquiries about beef breeding animals comes from dairymen who are contemplating a possible change. Certainly a great many new farms seem to be starting out with beef. This change seems quite natural when you consider the many worries that are avoided by beef production in the way of labor, health requirements, and equipment. The labor on a farm is a headache at best, but much less of a problem on a beef farm with no cows to milk and no averages to make. A farmer becomes less of a slave to his animals. During the summer the majority of the beef cattle on the farm can be turned out on pasture and field work can be carried on for longer hours. For the production of beef a minimum of expensive buildings and equipment is needed, and there are relatively few bothersome health requirements to be adhered to.

One of the points of dairying that farmers dislike giving up most of all is the monthly milk check. It is, of course, harder to have a regular cash income with beef cattle, but I do believe that on an established and well-managed cattle farm it is possible to accomplish this to a certain extent.

I stated earlier that 1940 had been a very successful year for Maryland beef cattle. Although I certainly do not feel that showing cattle is the most important thing in the business, I do feel that there is nothing else more indicative of the improvements made in the quality of and inter-

est shown in the beef cattle of the State. The number of herds of both Angus and Hereford cattle is increasing rapidly. This increase in quantity in itself might not be enough if it were not for the fact that the quality of our cattle is improving just as quickly. This year's Baltimore Livestock Show, as you all know, was a very successful one for Maryland cattle. It was probably the first year when both the 4-H and open classes have been dominated by exhibitors from this state. The quality of the animals shown was so good that Mr. Kennedy, the judge, compared the show favorably with most livestock shows out West.

At the Maryland State Fair at Timonium this fall, the Angus and Hereford classes were larger and stronger than ever before. I heard several exhibitors who had come in from the Columbus show, state that they believed that Timonium was a stronger show than the Ohio show had been. With all this competition, Maryland owned animals were able to take both championships in the Angus division and the champion female in Herefords. The showing throughout the classes in both breeds was very strong.

At the Virginia State Fair a few weeks later, Maryland cattle again came through with two championships and a major part of the wins.

Some people might have felt that winning in our Eastern shows meant little, so this year Cremona and Cold Saturday Farms with Angus and Mr. B. S. Oles with Herefords went to the International at Chicago to fight it out in the stiffest possible competition. To say that the record that these three herds made was a good one would be a great understatement. Let's look over the record. Glencarnock Eric of Cremona, having won his class, went on to become the senior and grand champion bull of the Angus show. Cremona also won first prize with their three bulls and placed third with a senior yearling heifer. Cold Saturday's Anoka Barbara 2nd was second in the aged cow class, and the same farm took another second in the junior yearling heifer class.

In the Hereford show, Mr. Oles' home-bred summer yearling heifer, Lady Mischief Beauty 6th won her class, beating a heifer, that I understood had not been beaten this year. His two-year-old cow, Princess Domino, was third in a very strong class, and every one of the eleven head he showed was in the money.

In spite of these showings, Marylanders are still not satisfied, and more and more top cattle are being brought into the state all the time. To list at this time the good cattle brought into Maryland during the year would be impossible, but I would like to say that at least three of the leading Hereford show bulls of the West are now in Maryland herds.

Even more encouraging than this improvement in quality of our Maryland cattle, is the fact that Maryland farmers seem to be learning to appreciate good cattle when they see them. This year's 4-H judging team at Chicago gave all livestock breeders fair warning that they knew how to pick out the right kind of animals. There seem to be

more and more shifts from grade to purebred herds. Let's hope that the day when farmers were looking for the cheapest bull possible has passed. Now, they want something to really improve their stock.

For several years the annual Angus sales have been very successful and they have now reached a position of prominence among the breed's sales throughout the country. This year the Maryland Hereford Breeders' Association is planning a sale to be held in Frederick on April 23rd, 1941. It is the hope of every Hereford breeder in the State that this sale will be a great success and will become an annual fixture.

We are now getting the cattle in the state and the farmers seem to be learning what good beef cattle can do for them. If we can only persuade the consumer that meat can be produced in Maryland just as well as it can in Omaha, I believe the goal of Maryland beef production will be within our grasp.

MR. DERR: We will now hear from Mr. Cecil K. Holter, Jefferson, Maryland.

SWINE PRODUCTION IN MARYLAND

CECIL K. HOLTER

The hog is the oldest and most important source of domesticated meat consumed by the human race down through the ages. In Bible history, the prodigal son ate nuts from the carob tree with the swine which he was tending. In the medieval ages hunting wild boar was a favorite sport of the noblemen. Following the hunt the feast took place, when the head of the boar was brought to the banquet table with great pomp and splendor.

At the present time, the hog is still the most important source of meat consumed by the public. It is the only kind of meat which can be successfully cured and is, therefore, important for military and naval stores.

The by-products from the swine packing industry are many and varied. It has often been said that everything about the hog has been used, except the squeal. Beside the many by-products secured from the carcass itself, the skin, when tanned, is used by saddlers and bookbinders, and the hair used in making brushes.

It is interesting to note that the average yearly consumption of meat, per person, in Australia is 240 pounds, in the United States and Argentina, 105 pounds and in Italy, 25 pounds. Only one other country exceeds us in the consumption of meat. Fifty million hogs are slaughtered in the United States, yearly.

What part does Maryland play in swine production? The hog population of Maryland is about 200,000. One-tenth of the number, or about 20,000 hogs, are produced in Frederick county, which is the leading county in swine production in Maryland. In the Middle West, one hog is produced for each person. In the Northeastern section, of which

Maryland is a part, one hog is produced for each fifteen people. 325,000 hogs are put on the market annually, in Maryland, while 950,000 hogs are consumed annually. This means that we are only producing one-third of the hogs consumed in Maryland and this, in spite of the fact that the price of hogs, on the Baltimore market, continually runs one-half cent higher per pound than the Chicago market.

The hog is also the most economical producer of meat among our farm animals. That is, it takes less feed to produce 100 pounds of pork than it does to produce 100 pounds of beef or mutton. Also, the hog has less overhead expense and quicker returns than any other farm animal. You can start with a pig and at the end of one year, have a sow and litter. In six months more, you can have your first litter on the market and another litter with the sow.

When I was asked to speak to you, back in December, I thought the subject of swine production might prove to be a rather painful one, with the price of hogs 6½ cents per pound, but since that time, with hogs advancing about 2 cents per pound, the situation looks much brighter. I think better times are ahead for swine growers, during the next few years. There are several reasons for making this statement, the foremost of which is the reduction of breeding stock in Maryland 20 per cent and in the whole United States, 12 per cent last year. The indications are that spring farrowing will even be reduced to a greater extent. This reduction in breeding stock must make itself felt in increased prices for several years. Secondly, consumer demand for meat and lard will be greater in 1941 than 1940, because our defense program will give more employment, and increased wages will bring greater purchasing power on the part of the public. Third, the establishment of training camps will cause greater consumption of meat. It has been estimated that soldiers in training camps will consume 30% more meat than they ordinarily would in their own homes.

Now, what is the purpose of giving you this rosy outlook for the swine industry in Maryland for the next few years? Is it to get the dairyman, the beef raiser and the sheep raiser to sell out and raise hogs? Far from it. This would be the greatest calamity that ever befell the swine industry. But, I would urge the farmers of this state to add a few good purebred hogs as a complement to their present farm industry and replace inferior breeding stock with good purebred sires and dams, and put swine production in Maryland where it should be. There are lots of good purebred hogs in Maryland and the breeders are just aching to sell them, so now is the time to purchase fall gilts or boars and bred sows, before the prices are boosted, and still take advantage of the upward swing in market hogs. I would like to urge all hog breeders to attend the Maryland purebred bred sow sale, which I understand will be held February 19th at the Timonium Fair grounds at 1 P. M.

In starting in the hog business one of the most important steps is the securing of good purebred breeding stock. A few years back, the tall, leggy, rangy, high-arched back type was in favor with breeders and

judges. This type of hog would not finish out until about one year of age and at a weight above the market demand. Now the approved type is lower to the ground with deeper bodies, thicker loins and heavier hams. This is a step in the right direction, as this type of hog will finish out at around 200 pounds in six months. However, we do not want to go to extremes in either direction. The real short, thick type of 20 or 25 years ago is not desirable, as they would only farrow 3 or 4 pigs to the litter. Today our sows will farrow 10 or 12 pigs per litter and the pigs are not too rangy to fatten out at 200 pounds.

A good brood sow should possess the following characteristics: Show femininity by having thin neck, clear bright eyes, medium sized ears, not obstructing sight- and width between the eyes; medium arched back; length and depth of body; large heart girth; smooth, deep sides; well-rounded, full hams; rather upstanding; well-developed udder—6 teats or more on each side; legs, strong, heavy-boned and straight; pasterns short and strong; good disposition—not cross, nervous.

A good boar should possess the following characteristics: Show masculinity by possessing a strong, wide head with short, thick, crested neck; smooth shoulders; full heart girth; strong, medium-arched back; deep, smooth sides; hams, full, deep and round; strong feet and legs, heavy bones; pasterns short and strong.

We often hear the question, "Which is the best breed of hogs?" There is no "best" breed for all conditions. The type of animal within the breed is of far greater importance than the breed itself. There are certain breeds that might adapt themselves to certain market conditions better than another breed, but generally speaking any of the lard-type breeds, Poland China, Duroc-Jersey, Chester White, Berkshire, Hampshire and Spotted Poland Chinas, are well adapted to the demands of the Baltimore market. Selection of breed then is mostly a matter of individual preference. For my part, I prefer the Poland China and Chester White.

Hog houses need not be so expensive. They vary from the single and double types of central houses to the individual type. Whatever type you select, they should be clean and dry, well-lighted and ventilated. The individual type is often built on runners, so that it can be moved to fresh pasture land. I have two shed-roof type hog houses, each 12'x30' with three pens each, a feed alley and outside yards. I also have four individual hog houses with exercise yards to each. The central houses are used for pigs and feeding market hogs. The individual houses and yards are used for farrowing houses and breeding stock.

I breed my gilts at eight months of age, except a few fall gilts which are shown at the fairs and bred after the show season is over for spring farrowing. In general, I believe gilts bred at eight months make better mothers than those bred at one year, when they are well grown, but they are slower in attaining their final growth.

I generally breed my sows to farrow in March and September. That time of year generally misses the extreme cold of winter and the heat

of summer. Also, the price of hogs is generally good in September before the western hogs are put on the market, and again in the spring after the rush on the market is over.

At farrowing time the sow should be put in a clean, disinfected and lightly bedded farrowing house. Feed should be reduced about one-half two or three days before farrowing. I like to be on hand at farrowing time, to help the weak ones to nurse and rescue those that have strayed over in a corner by themselves. In cold weather it may be necessary to warm the pigs at a stove and return them to the sow. The sow should have nothing to eat the first day after farrowing, but a little bran and warm water or skimmed milk and warm water. The feed should gradually be increased until the sow is on full feed at two weeks. The sow should be fed at a good distance from the farrowing pen so that she does not trample the pigs and also secure exercise in going after her feed.

When the pigs are two weeks old, I have a creep for them, where they are trough-fed three times daily. They also have all the pasture they want, and butter-milk from the creamery. I wean the pigs at eight weeks and breed the sows on the fourth or fifth day.

After weaning, a good ration for feeder pigs consists of the following feeds: Shelled corn, tankage or fish meal—self fed—and pasture, if available. A good mineral mixture, which should be kept before feeder and breeding stock at all times, consists of the following mixture:

Steamed bone meal—50 pounds.
Ground limestone—25 pounds.
16 per cent acid phosphate—25 pounds.
Salt—5 pounds.
Wood ashes (if desired)—35 pounds.

A good ration for growing and breeding stock, used by Lauxmont Farms in Pennsylvania, consists of the following mixture:

600 pounds ground oats
400 pounds ground corn
400 pounds ground wheat or barley
300 pounds bran
100 pounds fish meal
100 pounds soybean meal
50 pounds linseed oil meal
5 pounds salt
5 pounds commercial mineral mixture

This mixture is slop-fed.

For Maryland, where oats is not such a sure crop as barley, I would change the feed mixture to the following:

600 pounds ground barley
400 pounds ground corn
400 pounds ground wheat
300 pounds bran
100 pounds meat meal
100 pounds soybean meal
50 pounds linseed meal
5 pounds salt
5 pounds mineral mixture

For my own use I have the following mixture:

500 pounds of barley
300 pounds of wheat
100 pounds of bran
100 pounds of meat meal
10 pounds of salt

Mineral mixture fed dry. The above mixture is slop-fed three times daily in the summer and twice daily in the winter with warm water. This mixture is fed to pigs, fattening stock, growing and breeding stock, with corn fed on the ear. Corn is limited to the pigs, growing and breeding stock and the fattening stock get all they will eat. This ration is supplemented with buttermilk from the creamery. The young show stock also receive rolled oats and 40 per cent hog meal.

I wish to mention a few of the most common diseases prevalent among hogs and their treatment. Unless hogs can be raised on ground where no hogs have previously run, they are bound to pick up worms. For treatment, feed the following mineral mixture: One bushel charcoal, 4 lbs. limestone, 4 lbs. bone meal, 4 lbs. salt, 1½ lbs. copper as dissolved in 1 qt. of water and poured over the rest of the mineral mixture. Another old treatment is the following: Keep feed from hogs for 12 hours. Then, give 1 tablespoonful of turpentine for each 75 lbs. weight, once a day for three days in milk, or slop flavored with a little milk. The treatment for lice and mange consists of spraying with crude oil or a commercial dip. Thumps can be prevented by exercise and the feeding of clean soil. Soil contains iron which when fed prevents the thumps. Scours can be cured by cutting down on the feed of the sow. Cholera can be prevented only by either the single or double serum treatment.

Is cross-breeding desirable in raising market hogs? Professor H. H. Smith of the Utah State College in the Poland China Journal has this to say about cross-breeding. His article is entitled "The Fallacy of Cross-breeding Exposed." He says the practice of cross-breeding does more harm than good and is destructive to the future breeding worth of the herd. He says that where purebred animals are used for the crosses the results are satisfactory, but too often purebred animals are not used. He also says that improvement within the herd of one breed is the safest and surest way to profitable hog production.

MR. DERR: Our last speaker on this morning's program is Mr. Mylo Downey, Assistant State Boys' Club Agent, University of Maryland, College Park, Md.

4-H CLUB LIVESTOCK PROJECTS ON MARYLAND FARMS

MYLO S. DOWNEY

It is a pleasure to discuss briefly the 4-H Club livestock work of the past year because we who are associated with the work are rather proud of the achievements.

The total number of boys conducting livestock work has been steadily

increasing and reached a new high of 905 enrolled with colt, beef cattle, sheep and swine enterprises. Of course, numbers are only one measuring stick of accomplishments. The quality of the work done and the extra activities participated in are better gauges of progress.

Timonium Fair and the Baltimore Livestock Show are our show windows. At Timonium 89 different livestock club members exhibited 34 baby beeves and 120 head of swine. The registration papers of all pigs were checked before they went into the ring. This was an innovation of 1940 and we believe a step in the right direction. For the first time the swine exhibit was judged on a day separate from the open class exhibits. This show attracted a large, interested ring side.

This was the third year for a baby beef exhibit at Timonium and was nearly double that of former years. Breed and grand champion fitting and showing awards stimulated the club members to present their animals in tip-top shape. The interest in livestock judging at Timonium, under the direction of Jim Outhouse, was sufficiently great to cause 25 boys to pass up Labor Day attractions and spend the entire day learning the points of judging. The day was not spent in vain, as I will point out a little later. The Horse Fitting and Showing Contest attracted teams from seven counties.

We made a movie of all of these activities at Timonium.

At a livestock show there always seems to be two things more important than anything else. Who had the champion steer? and, What did he bring? From these two points, the Baltimore Livestock Show was a huge success for Maryland 4-H Club members. Because Richard Greenwood, a 4-H Club member of Frederick County, did have the champion calf. Maryland club members exhibited 52% of the calves winning prizes in the club classes open to Maryland and nearby states. We don't have a complete financial summary of all calves fed; however, Rufus King, Assistant County Agent, found that the boys in Montgomery County netted a profit of more than $20.00 per head, not including prize money, after receiving a good price for their corn.

I stated in a Stockmen's Association meeting several years ago that I believed one of the biggest problems of 4-H Club members in Maryland was to develop sufficient prestige in the minds of the Maryland breeders to influence them to sell their good calves to Maryland 4-H Club boys. I feel this obstacle is fast being overcome based on the quality of the calves fed last season and those in the hands of the boys at the present time.

For several years, we have been striving to discourage so-called professionalism in the junior classes. Thanks to Mr. Harvey, we can report that it has been eliminated.

While talking of Baby Beef Shows, I want to mention the Washington County exhibit at the Hagerstown Fair and the sale at the Four States Livestock Sales Company. Thirty-six calves were judged and all placed in three groups according to their market quality. In my opinion, this is a sound, desirable educational procedure. A few weeks later, Mr. E.

B. Clark, president of the Four States Livestock Sales Company, entertained the club boys, their fathers and mothers at a delightful dinner, serving steaks from the champion steer.

At the Baltimore Livestock Show, Maryland boys exhibited trios of swine and trios of lambs. The swine exhibit has increased to the extent of being one of the features of the Show. The lamb exhibit, however, has been affected by the lack of profit boys were able to realize, due to the high prices they must pay for lambs in mid-summer. The exhibit consisted of only 11 trios from Maryland.

The feeding of Western lambs, a project carried on in winter months, seems to be a very practical one. It is sufficiently large in size to challenge the best efforts of the older boy. The minimum project is a unit of 15 head; however, several boys have as many as 45 to 60 head now on feed. At the present time, 25 boys living in Queen Anne's, Cecil, Baltimore, Howard, Carroll, Montgomery and Frederick Counties are feeding 546 head. The average profit per head on lambs fed during the last two years was $1.20. This may seem small, but when figured on the basis of a deck or a carload, it would make an attractive addition to the farm income for a period of 100 days during the slack season.

The brightest spot in the 4-H Livestock Club horizon during 1940 was the accomplishment of the Frederick County Judging team in winning the National Contest at the International Livestock Show. This was a real accomplishment, when we consider the livestock background of our boys in comparison with those of the mid-western states. This winning may well be attributed to the willingness of the boys to work, a lot of good training by Henry Shoemaker and Jim Outhouse, and genuine cooperation on the part of many breeders throughout the State. I am glad you will have an opportunity to meet this team at the banquet tonight.

Twelve Maryland 4-H Club boys attended the International Livestock Show and National 4-H Club Congress. These trips were provided by the Maryland State Fair Board, The Baltimore and Ohio Railroad, the Howard and Harford County Rotary Clubs, Maryland Bankers' Association and the Horse and Mule Association of America. We have just been notified by the Horse and Mule Association of America that they are again offering a trip to the National 4-H Club Congress in 1941. This award was offered in Maryland for the first time last year.

The Humane Society of Baltimore County is looking for ways of helping the 4-H Livestock Club Work and is now considering sponsoring a program for livestock demonstration teams.

In summarizing, may I say we like to win blue ribbons, are proud of our championship and first place judging teams, but more than that we hope through the training received in 4-H Club work the farm boys of Maryland will have a keener appreciation of good livestock, a better understanding of what is necessary for its production. To constantly strive to "Make the Best Better" whether it be in the breeding pen, feed lot, show ring or market place is ever the objective of 4-H work.

MR. DERR: This concludes our morning session. We will now adjourn for luncheon and the afternoon session will begin promptly at 1:00 P. M.

AFTERNOON SESSION

MR. DERR: Our first speaker on the program this afternoon is Dr. Mark Welsh, State Veterinarian, College Park, Maryland. Dr. Welsh will tell us something about calfhood vaccination.

CALFHOOD VACCINATION

DR. MARK WELSH

Contrary to the usual opinion, Bang's disease is not a new infection. The symptoms of abortion were quite accurately described over 100 years ago in England and in 1896, Dr. Bang in Denmark, proved it was caused by a specific organism. Since 1896, many drugs and chemicals such as carbolic, methylene blue, and formaldehyde have been used in treatment without success. More recently sulfanilamide, phenothiazine and others have proved no better. Serums, bacterins and vaccines were tried with varying degrees of success.

Over 500 years ago the fundamentals of disease control were given as:

A. Kill or segregate the diseased

B. Isolate the exposed

C. Destroy or disinfect whatever may have been contaminated

These are harsh but effective principles to follow and for those who have the courage to intelligently use them they give results. About 1920, a start was made in many herds to eradicate Bang's disease by the test and segregation method. Many herds in different states were rendered free from infection, but great impetus to the work was given in 1934 when the Federal Government offered indemnity to owners who had infected cattle slaughtered.

Examination of the records will show that the test and slaughter plan has succeeded best in those areas where the incidence of the disease is low; where herds are small; where the movement of cattle is at a minimum and out rather than in. Where opposite conditions have prevailed, Bang's disease has been a difficult question and men who are thoroughly familiar with the problem know that effective control has not been attained. I would like here to show some slides of data compiled from Federal records. These data show the estimated amount of infection in 1934 by states and counties and the reported reduction, if any, in 1939. These range from Connecticut having 22% infection down to New Mexico which reported 3%. I have also included the percent of cattle slaughtered because of Bang's disease between 1934 and 1940 in the various states.

Slides shown.

We have learned much since this program started in 1934 and there

are but few who would doubt that most desirable progress has been made. We have drawn heavily on our experience gained in controlling tuberculosis. Unfortunately, the identical principles do not apply in all cases to both diseases. With tuberculosis the period of incubation is long and generally the old cases are the spreaders; with Bang's disease, the period of incubation is shorter and the recent cases are the most consistent spreaders.

Virtually all states north of the Potomac and east of Ohio buy more dairy and breeding cattle than they sell. The two exceptions are Maine and Vermont. The infection rate for Bang's disease in these states averaged above 15% in 1934 and, with the exception of Maryland, which has dropped from 15% to 7%, and Delaware, there has been but little change. It should be noted, also, that most of the middle western states from which cattle are brought had an average of only 7% or 8% infection in 1934, while the most of the southern states had 5% or less. It has been apparent for some time that the heavily populated states in the northeast were having a more difficult time in controlling Bang's disease and that a supplement to the test and slaughter method was needed.

I have a few slides covering our work on calfhood vaccination and our area test work in Maryland I would like to show. These more briefly tell the story than I can present it to you otherwise.

Slides shown.

The following is quoted from the paper Dr. J. R. Mohler, Chief, Bureau of Animal Industry, presented at the December meeting of the U. S. Live Stock Sanitary Association and is based on observations on over 17,000 calves vaccinated with Strain 19 vaccine.

"As a result of disturbed world conditions, sanitary officials in many States, as well as the Federal Government, are confronted with a problem of considerable proportions. The threat of an extended diversion of funds, ordinarily available for peace time Government functions but now required to meet the exigency of total preparedness, one of the gravest and most impelling problems of all America today, is an ever-increasing probability. Under the extraordinary circumstances presented by this situation and in view of the potential possibilities of *Brucella abortus* vaccine as an aid in the control of brucellosis, it appears desirable to amend the present program to include calfhood vaccination as an adjunct to the test-and-slaughter method, in those States where this procedure is desired.

"An operative program to carry this procedure into effect should be simple and uncomplicated and the following general plan is proposed for this purpose:

1. All animals over 6 months of age in a herd under cooperative supervision, where the owner elects to adopt the vaccinal procedure, should be subjected to a blood agglutination test prior to the inauguration of such a program, and at least one test annually should be applied thereafter.

2. To facilitate matters in connection with the movement of animals in such herds, in addition to protection of the purchaser, a simple uncomplicated record of each herd is absolutely necessary.

3. The vaccination of all animals should be confined to calves between 4 and 8 months of age and this should be accomplished as nearly as possible during the sixth month of the animal's life.

4. The age of the animal and date of vaccination should be properly recorded and the identity of each animal should be properly established in each instance.

5. An animal in a herd where vaccination is practiced should not be disposed of for any purpose other than immediate slaughter while revealing a positive titer, except upon written permission by the cooperating State or Bureau officials.

6. A herd under the vaccinal plan may be certified as a HERD FREE OF BRUCELLOSIS for a period of one year when all animals in the herd over two years of age reveal at least two negative reactions to official blood agglutination tests properly spaced, when non-vaccinated heifers under two years shall similarly be proved negative to the test, and, when vaccinated heifers under two years either show a satisfactory decline in titer or are removed for slaughter.

7. The subject of the joint payment of indemnity to owners of adult cattle that reveal a positive reaction to the blood agglutination test in a herd under the vaccinal procedure, is a matter that should depend upon the circumstances within a State. However, in instances where vaccinated animals over 2½ years of age (that were vaccinated between 4 and 8 months of age) disclose a positive reaction and the owner desires to dispose of such animals, a joint payment of indemnity is recommended.

8. Owing to a variation of conditions in different States, it appears, except for a general operative plan of procedure, that minor details in a program of this character are matters which should be delegated to the cooperating State and Federal officials in each of the various States.

9. It must be appreciated that one method by itself may not be applicable to all types of herds. In some herds the disease must be eradicated as soon as possible in order that the herd may be maintained on a paying basis. In other herds, another method may be considered a more profitable and therefore a preferable procedure. In still other herds, a combination of methods may work as the best solution of the Bang's disease problem. The livestock officials in the individual States, governed by the desires of individual stock owners, should assume the responsibility of determining the manner in which their respective interests could

best be served. Naturally, these officials have the privilege of (1) continuing the test and slaughter method (2) adopting calfhood vaccination as herein outlined, or (3) using the latter as an aid by integrating it with the test and slaughter method. In other words, those who are two-fisted may prefer to use both fists and not have one handcuffed. When the Bureau is acquainted with the desires of the various States, its duty will be to cooperate to its fullest extent with those that express a desire to suppress this malady in their respective domains along any of the three lines mentioned."

Officials of Pennsylvania, New Jersey, Delaware, West Virginia, Maryland and the Federal Bureau of Animal Industry have had meetings recently to develop uniformity of methods to control Bang's disease in these states and to establish uniform interstate shipment regulations. Basically, all agree on two general plans (a) continuation of test and slaughter method where the infection rate is low (b) supplement the test and slaughter method with calfhood vaccination where it seems desirable. In heavily infected herds it may be desirable to use calfhood vaccination alone under quarantine conditions and with sufficient restrictions to protect the neighboring herds. The details of these plans will be studied by a special committee of the Agricultural Advisory Council in the near future and we hope they can be in operation within a month.

Calfhood vaccination is not a panacea and has certain values and limitations. The following values are quite generally accepted:

1. It will increase resistance of vaccinated calves to infection after the calves reach maturity. Cows vaccinated as calves will be less likely to react and to abort when exposed to infection.
2. It will make possible the raising of resistant calves in the presence of a badly infected adult cow herd.
3. Blood reactions to the test in vaccinated calves usually disappear within three to nine months after vaccination.
4. There is little, if any, evidence to indicate that calves properly vaccinated may spread infection.

Some limitations of calfhood vaccination are:

1. One hundred percent of the calf population must potentially be vaccinated to protect it against the herd infection.
2. Vaccination must be limited to calves between the ages of 4 to 8 months. Calves older than this carry a blood reaction a longer period of time and may never become negative.
3. Vaccination of mature animals is generally considered undesirable and is of little value, if not eventually most detrimental.
4. The resistance or immunity established in calves is of indefinite duration. It may or may not last the lifetime of the cow.

5. Vaccinated calves should not be exposed to gross virulent infection and the vaccine appears to give best results in conjunction with the test and slaughter method.

6. The vaccine must be fresh and properly used to be effective and can be officially used only on permit from the Maryland State Board of Agriculture under the Maryland law.

MR. DERR: Thank you, Dr. Welsh. We will, at this time, hear from our next speaker, Dr. C. D. Lowe, Senior Extension Animal Husbandman, United States Department of Agriculture, Washington, D. C.

ANIMAL HUSBANDRY PREPAREDNESS

CLIFTON D. LOWE

A strong and vigorous agriculture is basic to national welfare. Urban people are inclined to take agriculture more or less for granted in normal times, but all segments of the population recognize the essential importance of agriculture in times of war, or when war threatens. And, when we consider that the income from livestock represents almost one-fourth of the income received from the sale of all farm products—the greatest single source of income for American farmers—the vital importance of the livestock industry to agriculture in general is apparent. Approximately one-half of our 2 billion acres of land is in pasture or range, and grazed by livestock, and 3 acres of every 4 of our crop land are devoted to the production of feed crops.

In addition, and of equal import, is the fact that livestock is the most important single source of our food supply. They furnish 80 percent of the fat and 52 percent of the protein we eat, and 40 percent of the total energy utilized by our bodies. All in all, the livestock industry in one way or another influences both the economic and nutritional well being of practically every inhabitant of the nation. For these reasons, it is altogether appropriate that animal husbandry preparedness be a topic for consideration at this critical period in our nation's history.

Before taking up the strictly animal husbandry side of the topic, it may be well to "highlight" some of the economic aspects of the present situation as they concern the livestock industry. In the first place, it is important to know wherein the present situation and outlook parallel those of the 1914-1919 World War period and wherein they differ. There have been but few periods in which the prospects for prices and incomes received by livestock producers have changed so greatly as during the past year. The greatest change has taken place since last May when our program for National Defense got under way, and strengthened the domestic consumer demand for livestock products. During the 1914-1918 period there was not only a strong consumer demand at home but there were also large increases in exports of meat. Pork exports in-

creased from 368 million pounds in 1914 to 1,900 million pounds in 1919. The latter figure represented about 22 percent of our total production.

Exports in beef increased in the 1914-1919 period from about 35 million pounds to 500 million pounds. Compare this with the situation existing at the beginning of the present European war when we were nearly on a purely domestic basis for livestock products; in fact, the past 5 years' data show that we had small net imports of meats and livestock combined for that period. In contrast to the World War situation, our exports of pork and lard have decreased rather than increased since the beginning of the present war, and during the months from April to August last year were only about one-third as large as in the same months of 1939. Great Britain, formerly our leading export outlet, has taken practically no pork since last February. Much the same situation exists for exports of lard. For the year 1940, lard exports totaled about 200 million pounds, while in 1939 they were 277 million.

For the coming year, at least, it appears that most of the British import requirements for meats can be supplied by Canada and certain South American countries, and that large supplies of oils of vegetable origin, which formerly went to the continent of Europe, probably will prevent any expansion in our exports of lard to Britain.

Therefore, as already stated, the most important new factor affecting the livestock industry is our own defense program, and the large volume of industrial products now being exported. This expansion in industrial activity means increased employment, increased payrolls, and larger incomes of consumers generally. It is expected that the national income in 1941 will be at least 10 percent greater than in 1940. These conditions are favorable for higher livestock prices.

It appears probable that livestock marketings in 1941, in terms of total dressed weight, will be smaller than in 1940, and that practically all the decrease will be in hogs, reflecting the reductions in the 1940 pig crop. Slaughter supplies of beef, in terms of total live weight in 1941, are apt to be a little larger than in 1940, and supplies of lambs in the first half of 1941 will be fully as large as in the corresponding period of 1940.

Total supplies of feed grains—corn, oats, barley, and grain sorghums —are a little smaller than those of last year, but except for last year, are the largest in 20 years. If the quantity of corn under loan or held by the Government is excluded, the total feed grain supply per animal is about the same as the average for the 5 years before the 1934 drought.

It is impossible to know when the war, or our defense program, will be over, but we can safely assume that they will end some time. The industrial boom for armaments, as visualized from developments to date, will last about three years, unless something happens to change things. For 1941, 1942, and 1943 industrial production and payrolls should be fairly high. But we may hit a slump in 1944. We will hit that slump sooner if peace is declared and if armament construction is thereby curtailed.

The number of cattle on farms and ranches in this country has been increasing since early 1938, following the sharp decrease in the 1934-1937 period. At the present time, total cattle numbers are estimated to be close to 71 million head, an increase of about 2 million since January 1, 1940. Barring extreme drought, it seems probable that cattle numbers will continue to increase and that in the next 3 or 4 years the 1934 peak will be exceeded. By that time it is also probable that hog numbers may be large. Under such conditions the total volume of meat produced would be considerably larger than that of 1940 which was the largest commercial output on record. Thus, it appears that unless consumer demand is unusually strong, lower prices for cattle and hogs can hardly be avoided at some time within the next five years.

From all these indications, it appears that the effects of the war, directly and indirectly, on the livestock industry will be felt mainly through changes in the domestic demands for meats, which will bring higher prices and incomes to producers in the immediate future, but at the same time will tend to accentuate the prospective increase in meat production in the following years, which will have the opposite effect on prices and incomes of livestock farmers.

There is nothing in the picture as presented that would warrant the commercial stockman or farmer in enlarging his livestock production plant at this time. Furthermore, memory is vivid regarding the aftermath of over-expansion following the World War. A repetition of this, surely we wish to avoid. What does seem warranted, however, is stepping-up the efficiency of existing livestock production facilities to the end that full plant capacity may be utilized and the products thereof meet trade and consumer requirements. With this objective in mind, I now wish to bring to your attention some results of research work in animal production, mainly conducted by the Department, which would appear to have application in this connection. It is realized that many of the results of scientific research do not have immediate and general application to an industry. They may need refinement, modification, or other adaptations to meet the needs of specific situations. However, we all realize it is the man who is constantly alert to obtain, appraise, and apply the new ideas, that usually leads the parade of progress and success.

First, let us look at the field of livestock feeding. It is generally recognized that feed makes up the largest single item of expense in livestock production. After all, farm animals are merely biological factories for converting the raw products of the soil and certain by-products of industry into more refined commodities to serve man's needs. The economic importance of the whole subject of feeds and feeding is thus indicated. The point I desire to emphasize in this connection is the vital part played by minerals and vitamins. And, it is only recently that scientific research and practical experimentation have shown the essential functions they perform in the dietary of domestic animals. It is now known that livestock rations must contain optimum

amounts of carotene and phosphorus for normal reproduction, growth, fattening and health, although deficiencies of protein, total energy, calcium, other minerals, and other vitamins may also be present.

Carotene contained in feeds is converted into vitamin A by the consuming animal. Vitamin A deficiency in cattle is manifested by night blindness and frequently total blindness, associated with other symptoms. Cows may fail to breed regularly, may abort, or give birth to weak, blind, or dead calves even when carried for full period. Feeds low in carotene are cottonseed meal and hulls, linseed and soybean meals, wheat, oats, barley, white corn, corn stover, white sorghum grains, beet pulp, molasses, cereal straws, grass or low-grade legume hays, range herbage during extended drought periods and hays held in storage more than one year. Feeds rich in carotene are green pasture, high-grade hays, well-made silage and high-grade alfalfa meal.

It is probable that no dietary deficiency of livestock, and particularly of cattle, is so common the world over as a deficiency of phosphorus. This is due primarily to a deficiency of this element in the soils on which plants used for feed are grown. Feeds other than those of plant origin naturally are low in phosphorus.

Depraved appetite is a common symptom of this deficiency for which reason the condition has been called "bone-chewing" disease. Feeds rich in phosphorus are whole cereal grains, wheat bran, cottonseed, linseed, peanut and soybean meals, steamed bone meal, legume hays and herbage generally from phosphorus-rich soils.

The Tennessee Agricultural Experiment Station recently ran a feeding test with beef calves to determine the relative values of red clover hay, some of which was grown on phosphorus-rich soil and some on phosphorus-poor soil. One of the soils had only one-fifth as much available phosphorus as the other. The two hays were fairly comparable in maturity, leafiness, color, and aroma, and were of good grade and quality. The hays were fed along with ground yellow corn, salt and cod-liver oil for a period of 196 days. The calves, receiving the low-phosphorus hay gained an average of only 79 pounds per head in comparison with 124 pounds per head for the calves on the high-phosphorus hay. The cost of gains was about one-third more for the low-phosphorus group.

The Bureau of Animal Industry conducted a cooperative experiment with the Texas Agricultural Experiment Station and the King Ranch to test the value of feeding a phosphorus-rich mineral supplement to a herd of cows and calves under range conditions in Texas. The supplement consisted of bone meal and di-sodium phosphate. It was fed so as to supply the dry cows with 6.5 grams of phosphorus, and the lactating cows with 14.3 grams of phosphorus per head per day, while they ran on the range. The average percentage calf crop in the supplemented group for a two-year period was 83, while that of the non-phosphorus group was 58. At weaning time the supplement calves weighed an average of 499 pounds per head while the non-supplement group weighed

421 pounds. At $60 per ton for the di-sodium phosphate and $42 per ton for the bone meal the annual cost of the supplement per cow was $2.60. With these observations in the nutrition field we will pass on to breeding.

Over a six-year period the Oklahoma Agricultural Experiment Station carried on a carefully controlled study for the purpose of obtaining information regarding the advantages of degrees of pure blood in calves fed out for beef production. In each of the six years three lots of calves (106 head in all) were tested. One of the lots (Lot 1) was made up of calves sired by scrub bulls and out of scrub cows. A second lot (Lot 2) contained calves sired by purebred bulls, but out of scrub cows. The third lot (Lot 3) was of calves sired by purebred bulls and out of high-grade beef cows. The average feeding period was 179 days, and results were as follows:

Lot 1 made an average daily gain of 1.67 pounds per head and consumed an average of 530 pounds of grain and 360 pounds of roughage for each 100 pounds of gain, at an average cost of $8.58.

Lot 2 made an average daily gain of 1.87 pounds per head and consumed an average of 456 pounds of grain and 301 pounds of roughage per 100 pounds of gain at an average cost of $8.32.

Lot 3 made an average daily gain of 1.97 pounds per head and consumed on the average, 447 pounds of grain and 297 pounds of roughage to produce 100 pounds of gain, at an average cost of $7.72. So much for the worth of pure breeding as illustrated by beef cattle.

It is now desired to present some of the results of record-of-performance work carried on by the Bureau of Animal Industry at Beltsville and other field stations of the U. S. Department of Agriculture. In this field, competent authorities believe, lies the great opportunity of the future to improve our nation's livestock. We all know that wide variation exists in the efficiency with which individual meat animals utilize feed. It is also apparent that they vary in conformation, type, and other physical characteristics. End products, such as meat, wool and mohair also show wide variations in quality and in volume. All these items have economic importance, and are the basic factors around which much research study is being directed in record-of-performance activities to identify and isolate the genetic principles responsible for these variations. To illustrate the opportunities for real advancement in this field the following data from our records are presented:

Twenty-nine daughters of one Rambouillet ram excelled the 21 daughters of another Rambouillet ram, 3.6 percent in average weaning weight at 140 days of age; 4.2 per cent in average weight after shearing as yearlings; and 8.9 percent in average weight of unscoured fleece; all had the same feed and care. Furthermore, both rams were excellent individuals from a physical standpoint and were bred to uniformly good ewes.

Another striking example comes from an analysis of the performance of the different families making up the Bureau's flocks of purebred

sheep. It was found that the leading family of Hampshires produced an average of 7.3 pounds more lamb per ewe at 140 days of age than the average of the Hampshire flock. Likewise the best Corriedale family excelled the breed flock average by 5.5 pounds per ewe, the best Shropshire family, its flock average by 10.4 pounds, and the leading Southdown family produced 9.6 pounds more lamb per ewe than the average of that flock. These leading families also had similar advantages in market grade comparisons of their lambs.

In our swine records we found that the 62 pigs sired by one Chester White boar excelled the pigs sired by another boar of the same breed in the following particulars—19.2 percent in number of pigs farrowed per litter, 11.1 percent in average daily gains, and 10.3 percent in economy of gains. All conditions were identical and the better sire showed no outward signs of his superiority. In this instance the pigs involved were farrowed by the same sows.

Now for an example from the beef cattle field. The steer calves sired by three rather closely related Hereford bulls were fed to average weights of approximately 900 pounds on a standard ration of cracked corn and alfalfa hay. There were no visible differences in type, conformation or quality among the three bulls, yet the progeny of one of the bulls was significantly superior in efficiency of gain to the progeny of the other sires. His steer calves averaged 19.59 pounds of gain per 100 pounds of digestible nutrients consumed; those of the second bull, 18.17 pounds; and those of the third bull, 18.06 pounds. Moreover, the heifers sired by the first bull were 14.7 percent heavier at weaning time, and 7.4 percent heavier at 18 months of age than those sired by the second bull, and 10.5 per cent heavier at weaning time, and 2.4 percent heavier at 18 months than those sired by the third bull.

It may be stated that the results so far obtained by the Bureau in its studies on this question have demonstrated a few fundamental facts. First, that measurable differences do exist between individual animals in their ability to utilize feed; second, that those differences are inherited, since measurable differences between sires can be demonstrated; third, that there is no correlation between conformation of the animal and its feed utilization efficiency; and, fourth, that a sire may be tested by subjecting a part of his first year's progeny to the test.

The first essential, of course, in proving a sire is a dependable method of identifying his offspring. Another is an equal opportunity for all progeny under test. And lastly, a method of measuring differences that is simple enough for widespread application.

The data presented serve to point out the opportunity for livestock improvement through the application of record-of-performance principles. The progress made in research to date indicates that the time is not far distant when interested meat animal breeders may have available to them a plan of practical nature for the improvement of their herds and flocks. To that end much effort is being devoted, and your continued support of that effort is invited.

MR. DERR: I am sure everyone gained some very helpful information from Dr. Lowe's address and the charts showing some of the results obtained in the Department's research work with the four purebred Shorthorn steers.

I would like to call upon Mr. William F. Schluderberg of the Schluderberg-Kurdle Company to introduce our next speaker.

MR. SCHLUDERBERG: Gentlemen of the Maryland Stockmen's Association, I really came here today to listen and not to take an active part in the program. I take great pleasure, however, in introducing Mr. Wesley Hardenbergh, President of the American Meat Institute, Chicago, Illinois.

MEAT ON THE MARCH

WESLEY HARDENBERGH

Meat as a food has not enjoyed in recent years the popularity which it merits. The American Meat Institute is now working to popularize and expand the use of meat.

Many agencies have been doing effective work in this field in the past, notably the National Live Stock and Meat Board, but present conditions are such that a new and added effort is needed.

The effective work of the Board has built up a magnificent fund of important scientific information about meat's health value. A vast proportion of the health and nutrition story about meat which will be told to the American public in the campaign will be facts made available because of the Board's work. Such a campaign would not be possible if it were not for the past and continuing work of the Board.

The use being made of this information in the advertising campaign exemplifies the way in which the activities of the Board and of the American Meat Institute supplement each other. There is no duplication in the work of the two agencies, both of which are working together to the fullest to make the campaign successful.

Livestock producers, through their continued participation in the National Live Stock and Meat Board, are playing an important part in keeping the merit of their product before the public. However, the American Meat Institute's campaign gives additional opportunity for the livestock and meat industry to cooperate for a vigorous and healthy nation.

Meat offers an outstanding appeal as food because of the many health factors which it has. It is not hard to digest. It is filled with vitamins and other nutritive values. The proteins, or body-building material of meat, are almost entirely utilized by the human system, and about 96 per cent of the fat is digestible.

Meat is rich in certain important minerals, having readily available copper and iron, the red blood builders. Meat is also rich in phosphorus, which works with calcium derived from other foods for the building of sound teeth and bones.

Meat is advised by physicians, nutritionists, and dietitians for many diseases, such as high blood pressure, Bright's disease, arthritis, rheumatism, tuberculosis, anemia and other nerve and kidney diseases. Meat consumption also serves as a preventive against many diseases.

If meat is given its rightful place in the diet, we shall have performed an invaluable service to the entire nation—its health values will go far in making and maintaining a healthy and vigorous population.

We know that you, as a member of the livestock and meat industry, are as anxious as we to make this program successful. We solicit your support.

In order to help in this matter, we should like to give you some information:

1. Per capita consumption of meat has gone from 162 pounds in 1908 to 131 pounds in 1939.

2. Exports of meat products to foreign countries have greatly diminished.

3. Consumers no longer eat meat three times a day but now average only 1⅓ times.

4. It is unusual rather than usual to find meat on the breakfast table, except for a small amount of bacon.

5. Meatless lunches have become a habit.

Points which will be stressed in the advertising and publicity material are:

1. There is a marvelous health story in meat.

2. Meat is an important natural source of vitamins. If you don't think people are interested in vitamins, look at the facts. In drug stores alone the sale of vitamins increased from $500,000 in 1933 to $75,000,000 in 1939.

3. On account of recent vitamin discoveries, pork, which many people put at the bottom of the list from a health standpoint, takes new rank as a wholesome, nutritious food.

4. The curve of scientific thinking about meat in the diet is sweeping sharply upward. The old wives' tale that meat is bad for high blood pressure, Bright's disease, kidney disorders, etc., has been largely exploded. On the contrary, meat is frequently recommended in greater amounts for patients with many ailments, according to statements approved by the American Medical Association.

5. Meat is recommended on most modern reducing diets.

6. Meat is recommended more and more by child specialists.

7. Articles in magazines and newspapers favorable to meat are beginning to appear.

8. The pendulum is beginning to swing in the direction of meat.

9. Meat is a rich and dependable source of complete proteins. Proteins build and repair muscles, cells, and tissues.

10. Meat is a dependable source of many essential minerals. Meat is high in readily available copper and iron—the red blood builders. Meat is rich in phosphorus which works with calcium for sound teeth and bones.

11. Meat is an important source of vitamins, especially the vitamin B group, which includes vitamin B_1 (thiamine) necessary for growth, protection against certain diseases, such as pellagra, beriberi, etc., and appetite.

12. The thrifty cuts of meat are as nutritious as the cuts which enjoy greater demand.

13. All meat is high in food value, regardless of the cut.

14. Housewives can introduce great economy in their budget by utilizing thrifty cuts. A large percentage of the photographs of meat cuts and recipes in the advertising is devoted to thrifty cuts.

15. Left-overs can be utilized attractively.

16. People eat meat because they like it, and most people like it. We need only to give them some good plausible reasons to eat more of it. The sense of guilt about eating "too much meat" must be erased.

17. Men particularly like meat. Surveys show that when the man of the family is at home, meat is served much more often than otherwise.

18. Doctors, dentists, and nutrition experts already have been receiving the scientific story of meat's nutritive value for some months. Additional millions of messages will be brought to them.

19. The story of the nutritional value of meat is going to scores of thousands of home economists in the professional magazines which they read.

20. Individual effort is the spark that can make this campaign reach its greatest effectiveness in increasing the acceptance of meat by the American public.

Here's how you, as a livestock producer, can insure a successful campaign:

As a livestock producer, you can do a great deal to magnify the value of this nation-wide effort to popularize meat.

There are five million livestock producers in the United States. Each of them has a definite, personal, individual interest in the success of this campaign. By promoting this campaign you will be doing a real service for your country, as you will be helping to make a healthy and vigorous nation.

Following are specific suggestions as to what you, as livestock producers, can do:

(a) Check with every retail meat dealer in the town where you do

business. Ask the dealers whether they are thoroughly posted about the campaign. Tell them about your interest and urge them to cooperate fully.

(b) See whether retail meat dealers in your town are displaying the campaign store material. If they are not displaying it, find out why they are not.

(c) Great efforts have been made to bring this story forcibly to the attention of the retail trade, but it is a job of such importance and such magnitude that the additional effort on the part of livestock producers can be most helpful in this connection.

(d) Talk with your family doctor and call his attention to the various advertisements.

(e) Talk with your dentist and call his attention to the advertisements.

(f) Ask your local restaurants and hotels to feature the cuts of meat which are currently being advertised. For example, they should find it beneficial to include on their featured meals each of the meat dishes being shown at the time in magazines or newspapers. Urge them to obtain menu stickers from the meat packers or wholesalers with whom they deal, and to use these stickers on their menus. Take advantage of opportunities which are open to you to bring the facts about this campaign before local luncheon clubs, such as Kiwanis, Lions, Rotary, etc. The broad, general importance of the program, and the high interest in it, warrant a place for it on the program of any luncheon group in a section of the country where livestock production is important.

(g) Stimulate and encourage discussion of the meat campaign at the meetings of your general farm and livestock associations.

(h) Ask your local schools to bring the advertisements in home economic publications to the attention of their home economics teachers and pupils.

(i) Discuss the important phases of this campaign with your friends and neighbors and ask them to pass the word along.

(j) Send us your views about the campaign, calling particular attention to any phase of it which is not functioning well in your immediate locality.

(k) You are a consumer as well as a producer of meat. The five million livestock producers and their families in the United States constitute a tremendously important group of consumers. Check your family menus. Then, check the statements about meat in the diet approved by the Council on Foods of the American Medical Association, and see whether your family is getting all of the high food value of meat that it needs for greatest health. Meat should be on the livestock producer's table three times a day.

(l) Talk with your neighbors about this campaign. Tell them about the job it can do for all livestock producers. Urge them to do each of the things which you are requested to do in this memorandum.

(m) Make sure the companies from which you buy livestock feed are thoroughly familiar with the campaign. Urge them to emphasize the campaign and its importance in the advertising which they do. Urge the companies to see that their salesmen are thoroughly posted about it so that they may spread the word as far as possible.

As aforementioned, there is a wonderful health and nutrition story in meat, and because of this newer scientific knowledge, meat is being advised by physicians, nutritionists, and dietitians for people with many ailments.

Through your participation in the work of the National Live Stock and Meat Board you have a direct part in helping to finance research and investigational work and to support the Board's educational activities so vital to the success of this program. Your additional personal, persistent activity is a factor, which is vitally needed to bring about maximum interest among consumers in meat.

To accomplish the desired objective, this campaign must be a continuous one. It cannot be of one or two years' duration. If a better appreciation of the health and nutrition values of meat is to be created, it will be an asset to the entire population of the United States, and will promote a vigorous and healthy nation. It will be a feature in solving grass and grain surpluses.

At this point three very interesting and entertaining films were shown: "Meat on the March"; "Meat and Romance," prepared by the Institute of American Meat Packers, and, "Do Unto Animals," prepared by the National Live Stock Loss Prevention Board.

MR. DERR: This concludes the day sessions of our Twelfth Annual Meeting and we will adjourn until 6:30 P. M. Our evening session will be held at the Oriole Restaurant.

EVENING SESSION

Banquet

President Ed Derr presiding as toastmaster.

MR. DERR: I am delighted to see so many of our members stay over for the banquet. Before going ahead with our program I see several very distinguished gentlemen in our midst and I am sure we would like to have a few words from them. Dr. T. B. Symons, Director of the Extension Service, University of Maryland is with us and we would like a few words from him.

DR. SYMONS: I would like to congratulate the livestockmen of Maryland and this Association on the splendid accomplishments they have made during the past year. I want also to congratulate the 4-H Club boys who made such a fine showing at the International Livestock Show and add my tribute to Mr. Shoemaker and the other County Agents, as well as Mr. Outhouse and the other specialists at the University for their splendid support in the various projects. So, as an humble member of the Extension Service and the College of Agriculture, we are proud

of our livestock leaders; we are proud of the progress that Boys' Clubs, the Specialists, and you producers are making in the State. I hope that we can plan for 1941 with the vision of those in the front; we will back it up with the quality on the farm, and I hope continue to increase in this great and major industry that is for the welfare of Maryland.

MR. DERR: Dr. R. B. Corbett, Director of the Experiment Station, is also with us this evening.

DR. CORBETT: I appreciate this opportunity of appearing before your Association. However, I know you have your program made up in advance and I do not wish to infringe upon the time of the other speakers. We at the Maryland Station want the stockmen of Maryland to feel that your problems are our problems; we are at your disposal and will make every effort to be of a distinct service to you.

MR. DERR: We would like to have a few words from Dr. F. H. Leinbach, Professor of Animal Husbandry.

DR. LEINBACH: I am going to be even shorter in my remarks. I compliment this Association for their very fine spirit that has been shown. We have had a very interesting program at both sessions today and I am sure everyone is anxious to go ahead with the evening program.

At this point Mr. Derr called upon Mr. H. R. Shoemaker, County Agricultural Agent of Frederick County, to introduce the members of the Frederick County 4-H Livestock Judging Team which placed first in the Non-Collegiate Livestock Judging Contest held at the International Livestock Show. The members comprising the winning team were: Staley Hahn, Frederick; Harry Fouche, Lime Kiln; William Martin, Monrovia. Mr. Shoemaker expressed appreciation to the Maryland State Fair Board for their whole-hearted support on behalf of the 4-H Club boys and also to the breeders of livestock in the State who cooperated in practice judging trips.

MR. DERR: Our speaker for the evening is Dr. Adolph Eichhorn, Director of Animal Disease Station, National Research Center, Beltsville, Maryland.

LIVESTOCK DISEASE CONTROL

DR. ADOLPH EICHHORN

First of all, I want to extend my appreciation for having the opportunity to appear before you. I can assure you it is a great pleasure and I want to take this occasion to congratulate these young men of the Maryland judging team who brought home the bacon from the International Livestock Show. It is a credit to the State of Maryland and shows what the educational institutions are doing for the livestock industry in this State.

In talking to you on disease control and research of animal diseases, I believe that I would rather discuss this from a national aspect than from a local aspect, especially at the present time, because of the war raging over there and naturally under such conditions there are great

possibilities that following the conflict diseases not indigenous to the United States might be introduced.

As my good friend, Dr. Welsh, mentioned, I visited Europe during March and April of 1940 and I could then foresee the tragedies which will follow this war and unless we take every precaution, we are constantly running risks of introducing destructive diseases which would not only be disastrous to ourselves but to our livestock. It is an established fact that in the wake of all wars diseases become widely disseminated.

As you know, there is now considerable pressure being exerted that we permit the introduction from certain countries of food products where we know that diseases exist, which, when introduced into this country, might threaten our livestock industry. I particularly desire to refer to foot-and-mouth disease, which has been before successfully eradicated and which should be kept from our shores by all possible means. From my personal contact in Argentine, I know that foot-and-mouth disease is there constantly present and during my visit there I had the opportunity of observing methods of inspection practiced in that country in the leading abattoirs. However, in spite of any vigilance which might be exercised on the killing floor, the possibility of passing carcasses infected with the disease is not remote, which could readily prove infective to susceptible animals. Great Britain has experienced outbreaks which unquestionably can be traced to such sources. It is unfortunate that a livestock country like Argentine is constantly menaced by the presence of this infection, in spite of the fact that meat production is their principal source of revenue. One cannot question the high quality of meat produced in that country. They have everything which makes it possible to produce prime beef. On the other hand, with the prevalence of foot-and-mouth disease, which is common to most parts of the country with the exception of Patagonia, they constantly are more or less under restriction because of the danger of introducing the disease to foreign countries. You can readily see that a carcass from an infected animal, after utilizing the meat, bones, and offals, may be thrown to animals which could be the source of starting the infection. I mention this as an incident to the emphasis I place on my former remarks concerning the possibility of introduction of diseases.

As far as the diseases prevalent in the United States are concerned, every effort is being made to combat many of the infections. They constitute grave problems, but this country has made great strides in adopting effective measures to eradicate diseases, especially if an emergency should arise. In 1902, foot-and-mouth disease was introduced into the United States and immediately steps were taken to proceed with the complete eradication of the disease by a competent organization of State and Federal specialists. In 1908, we had a similar outbreak which was successfully eradicated and in the last incidence of the appearance of the disease in the United States it was definitely traced to the feeding of garbage which originated from Chinese hogs. This garbage being fed to hogs in California initiated the appearance of the disease.

Another disease which we have successfully eradicated is tuberculosis. Only recently a representative of the National Institute of Health on visiting our institution suggested whether it might not be advisable to estimate the tremendous advantages of the eradication of bovine tuberculosis insofar as it reflects on the reduction of human tuberculosis. Reports from authoritative sources have definitely shown that glandular tuberculosis of children, bone tuberculosis of man, and also other forms of tuberculosis in children have been so markedly reduced because of the absence of the disease in cattle that the milk which carried the infection no longer constitutes a source of danger to the human family.

Another disease worthy of mentioning is Texas fever. In 1905, while attending the International Veterinary Congress at Budapest, where I participated in the discussion of the control and eradication of Texas fever in the United States, I mentioned the plans which we had evolved for the eradication of the disease, which scientists have found would be possible through the eradication of the cattle tick which transmits the disease. They thought that such a project was a very fantastic idea, but I made every effort to convince the members of the feasibility, realizing that if we undertook the project every effort would be made towards its successful conclusion. As a matter of fact, the tick has practically been eradicated and with it Texas fever, making it possible to enable the southern States to improve their livestock by maintaining better breeds and improving their breeds of cattle through the importation from the north, which, prior to the eradication, was impossible.

This morning Dr. Welsh discussed the progress which is being made in the control of Bang's disease and, with inaugurating certain definite procedures, it is my opinion that within a few years the disease will be controlled and possibly eradicated from the United States.

I would further like to call your attention to the other infectious diseases which are of the greatest importance to our livestock industry. I vividly recall the tremendous losses of livestock from anthrax in the South in 1928 in which outbreak more than 70,000 mules died as a result of this infection. With the development of effective vaccination, this dreaded disease is now comparatively rare because of the systematic vaccination practiced in the localities where the disease is common. Of course, it required considerable effort to have the livestock men see the advantage of these preventive measures, as it required considerable educational efforts to convince them of the marvelous merits of the precautionary measures. It is only natural that both the State and Federal authorities before adopting and recommending any measures for the reduction of animal diseases have thoroughly investigated their merits and only following their dependability will they be introduced for practical application.

A brief mention of the horse disease known as "sleeping sickness," which occurred so extensively in the United States in 1938, is a splendid demonstration of the possibility of the application of control measures. In 1914, the disease at that time known as the Kansas horse disease

also caused tremendous losses, but in spite of every effort to establish the true cause of the infection, the scientists were not successful in their search. All possible germs found in affected horses were studied, but neither of these fulfilled the requirements of sufficient proof to establish the cause. However, in 1930, when the disease again appeared in the United States, the scientists again tackled the problem from every possible angle and definitely established that virus is the cause of the infection. While immediately a vaccine was developed from tissues of the brains of infected horses, this has not proved entirely effective for protecting the animals. The inefficiency of the vaccine was unquestionably due to the lack of the infective material in the brain tissues; that is, in sufficient amounts to afford protection to the vaccinated animals. Later, when studies were undertaken with inoculation of chick embryos, it was found that this virus propagated in the embryos so rapidly that after its death an embryo contained more of the virus than several hundred of horse brains. It was also found that vaccine prepared from such chick embryos would protect the animals not only against ordinary exposure in the field, but also against artificial inoculation of the virus into the brain of susceptible horses.

Thus, a method of protection has been developed which could be entirely depended on and following the devastating outbreak of 1938, many millions of horses were vaccinated by the procedure throughout this country and practically no cases of the disease appeared, unquestionably because of the protection which was given the animal through vaccination. We are, therefore, in possession of a weapon which enables us to control this infection.

The discovery not only proved of tremendous value to horses in our country but an Associated Press notice of a recent date showed that in Argentine orders for several million doses from this country in order to check the infection were placed by Argentine, where the disease also gained unusual proportion. This particular disease was thought to affect only horses, and, as a matter of fact, any effort to transmit it to other species of animals failed. However, in 1939, in Massachusetts it was definitely diagnosed in several cases in children. In 1940, although the horse disease has practically disappeared in California and other parts of the United States, I have been told by public health authorities that more than 20 cases occurred in human beings, but in view of the fact that the doctors are not familiar with this disease they probably diagnose many cases as infantile paralysis, with which it has great similarity. Is it not possible that we are on a threshold where the virus of this horse disease may adapt itself and become a dangerous disease for human beings? If that is the case, I believe that another serious problem will confront the health authorities insofar as the possibility of the widespread distribution of the disease in human beings is concerned. However, this does not apply only to this particular disease of horses.

Other diseases of animals which we thought were only typical for cer-

tain species of animals have now been recognized as being closely related to the germs causing human diseases. I wish to refer to influenza. Just now we are confronted with the possibility of an outbreak of this disease in the United States. Many thousands of cases have already occurred in different parts of the country. Fortunately, however, the disease has not proved of the malignant type, as in the outbreak of 1917 and 1918 when millions of people died from this infection throughout the world. But, while the disease may be now in a mild form, as it passes from one human to another its virulence may increase to such an extent that it may become highly destructive. Fortunately, scientists of the National Research Institute of Great Britain in 1933 isolated from throat washings of human beings a virus which they proved to be the cause of human influenza. During my visit to that country in 1934, I asked these scientists for a sample of the virus in order that we might undertake studies in this country. Unfortunately, no means had been developed to grow or propagate the virus. However, it could be preserved for a considerable length of time by drying it in vacuum. We have maintained its activity through inoculation of ferrets, the only animals found at that time to be susceptible to this virus. Recently, however, you probably have noticed in the daily press, as well as in the scientific journals, the development of a successful vaccine for influenza by scientists of the Rockefeller Institute and in the preparation of this vaccine a combination of the influenza and dog distemper viruses is being used. This fact suggested the possibility that there might be some relationship between human influenza and dog distemper.

There is also the possibility that other viruses found in animals and man have a very close relationship. I wish particularly to refer to small pox, a disease also caused by a virus. For vaccination of human beings, the virus is obtained from calves, which, as a matter of fact, furnish the product for general vaccination. On the other hand, we have other forms of pox, such as chicken pox, sheep pox, and also swine pox. The disease in the various species of animals is very uniform in producing certain types of lesions and one wonders whether all these forms of pox virus have not had a common origin and that only through the adaptation of the infection for different species of animals and man they change their disease producing qualities. Thus, if such assumption actually does occur, we are confronted with the possibility of new virus diseases making their appearance. Fortunately, scientists are endeavoring through study to shed more light on the intricacies of these infective agents and it is hoped that these studies will enlighten us under what conditions the changes and adaptations of these viruses do take place and enable us to develop procedures towards combatting these maladies.

Another disease which is of great importance is fowl or range paralysis, in which the virus induces the development of tumor-like growths. The transmission under natural conditions, as well as by artificial exposure, of this disease through particles of the growth has been effective and this might lead in shedding light on the cause of other types of growths of a malignant nature.

Of course, one could discuss many other diseases which have baffled the scientists and which through systematic study are no longer problems in our effort to combat them. Unquestionably, many of these problems are baffling even to the efforts of the microbe hunters, but with perseverance new knowledge will be gained on all these problems and definite procedures developed which will enable us to combat the diseases for the benefit not only of the stockmen but also for humans.

Recently our Station has initiated very interesting and important work, which, it is believed, will have a bearing on the animal breeding and animal future of the country. I refer to artificial insemination. The principle of this goes back many, many years, but the fundamental study has only recently been taken up. Artificial insemination has received a great stimulus in Soviet Russia. Following the revolution, the depreciation of livestock was tremendous and the authorities in order to replenish shortage in animals and also to improve the breeds resorted to this form of propagation. However, while the technical application of the procedure has been successfully applied, the scientific study has been lacking and very little effort has been made towards transmission of the diseases by such means. Recently a publication on artificial insemination by the Russian government created quite a sensation. The report showed the splendid strides which have been accomplished in Russia by this method. Thus, for instance, they cite one bull which has successfully inseminated 98% of the cows in one year and this very same bull produced 2,840 calves. A ram produced 12,500 lambs. These figures are vouched to be accurate by the Soviet government and unquestionably they have achieved wonderful successes along this line. The advantages claimed for artificial insemination are that a good sire could impregnate many more females than if used naturally for that purpose and also only sires of good quality can be chosen. We are endeavoring to study this practice, not only from a technical point of view but also to guard against any possible spread of diseases, which, without precautions, may readily prove a pitfall for artificial insemination. Furthermore, while at the present time we can preserve the semen only for a few days, there is no reason why it might not be possible through scientific studies to develop a procedure by which the semen might be preserved for many months. Such a task is not impossible. Through studies, it has been made possible to preserve disease producing germs for a period of years by drying and sealing them in vacuum and studies might develop a procedure whereby the sperms may also be preserved for a much longer time than can be accomplished at the present.

We must consider that artificial insemination at the present time is only in its infancy and the statistical data available have not been computed very accurately. However, in controlled experiments in Denmark, it was shown that through artificial insemination it required 1.6% of inseminations for effective pregnancy, whereas in natural impregnation it required 2.4% of services. I believe this work is very important; aside from the other benefits and advantages which were cited, there is also

the possibility of improving the technic to an extent that the results will be much more satisfactory than they are at the present time. A lot more work will have to be done before we become thoroughly versed and practical in the procedure.

Inasmuch as my recent trip to Europe has been mentioned by Dr. Welsh, I wish to tell you briefly about its object. In eastern Europe a disease known as typhus fever exists, which is transmitted from man to man by lice. The disease is especially prevalent in countries where sanitary conditions are low, in which case men infested with lice are easy prey to the infection. An example of this is furnished by the statistics of deaths in Yugoslavia in 1917 and 1918. The number of deaths from this disease were close to one million. We can look forward to the same destruction in Europe by the disease following this war, as men in concentration and prison camps with insufficient sanitary provisions offer a very luxuriant field for the propagation and spread of the disease. A vaccine for this destructive disease was developed by scientists in this country and I was selected to develop means for testing out the product under field conditions in the threatened countries. Permission was obtained from the Hungarian and Roumanian governments to try the procedure in the Carpathian region in Hungary and Bessarabia in Roumania. The population of five villages in each country was selected for that purpose and with the excellent support of the respective governments, vaccination was undertaken of all the people in these villages with the necessary controls. It was hoped that in the course of a few months, definite data would be obtained on the results and that vaccination could then be employed on a large scale in all countries where the disease threatened the population. The possibility of mass production of the vaccine would enable the application of the method, if necessary, to the entire population of some of the threatened countries. Unfortunately, while typhus fever was recorded in some of the localities around these villages, the political situation has changed and for that reason it is not possible to evaluate the results. Bessarabia was taken over by Russia and in the lower Carpathian regions the shifting of the population has also interfered with the splendid experiment undertaken for the good of mankind.

MR. DERR: We will now enjoy a film "The Baltimore Livestock Show," taken and shown by Mr. John E. Clark, Field Representative of the Maryland State Fair Board.

MR. DERR: This concludes the Twelfth Annual Meeting of the Association. On behalf of the Association, I should like to express my appreciation to those who have helped make this meeting a success. We are proud to have such cooperative stockmen in our midst and hope that we will continue to have your support during the next year.

REPORT
OF THE
ANNUAL MEETING
OF THE
Maryland Tobacco Growers' Association

January 15, 1941

The Annual Meeting of all Tobacco Growers of Southern Maryland, under the sponsorship of the Maryland Tobacco Growers' Association, was held in the ballroom of the Lord Baltimore Hotel, Wednesday, January 15, 1941. Despite the bad weather conditions of sleet and rain, the large ballroom was more than half filled with growers eager to learn the facts governing their marketing problems.

Hon. Thomas Parran, president of the Maryland Tobacco Growers' Association, presided at the meeting. The first speaker introduced was George Sachse, manager of the Maryland Tobacco Growers' Association, who presented the Annual Report of the Association.

Mr. Sachse pointed out the steady increase in the surplus of the Association and the various increases in savings effected by Cooperative efforts. "I promised you that if you would cooperate and continue to support your organization," said Mr. Sachse, "that the time would come when much larger dividends could be realized by our members. This has passed the stage of a promise and is now a realized fact, because your Association has issued each of you a Certificate of Savings equivalent to $2.25 per hogshead on your 1939 tobacco shipments, which in total represents an additional saving to our Farmers of over $27,000.00. This, with the Cash Dividends, Discounts, etc., amounted to more than $60,000.00 in 1940."

Mr. Sachse discussed the parity price of several Agricultural products as compared with the actual price received by farmers. This comparison definitely showed that Tobacco farmers in other areas were far behind the Maryland Tobacco Farmer, who received over the parity price for his crop. "Although we of Southern Maryland are much better off than our brother farmers in other sections," said Mr. Sachse, "we are not earning enough, as a parity price is not enough to make it possible for our farmers to progress with the times."

The next speaker introduced was Dr. F. B. Bomberger, President of the Baltimore Bank for Cooperatives, whose topic, "It's Your Business," was more than appropriate for the occasion. Dr. Bomberger pointed out the steady consistent progress made by the Maryland Tobacco Growers' Association and its present sound financial condition.

Dr. Bomberger stated: "The fine showing made by the Maryland Tobacco Growers' Association should impress you with the value of cooperation. The rebates to the patrons were made possible by the cooperation of a few. It is impossible to say what could be done if all would cooperate." He further said, "It is impossible for me to understand why farmers do not wholeheartedly support their organization with all of the business they can put through it, when such organization has proved beyond a doubt that it can save money for you and can make money for you if you will only take advantage of the opportunities organization has to offer.

"A farmers' cooperative organization," continued Dr. Bomberger, "is your business and just how successful your business is depends on you. Organization differs from private business, in as much as your cooperative business belongs to you and you get the profits; private business belongs to a few individuals, and they get the profits."

Many favorable comments were heard, after the meeting, on Dr. Bomberger's decisive and enlightening talk and anyone who did not realize the value of organization after it was explained by him, could hardly be considered open-minded.

George I. Gardiner was the next speaker introduced, and spoke on "The Problems of Your Tobacco Market." Mr. Gardiner covered a wide range of market activity covering the past 20 years and presented facts and figures showing definitely that the average price obtained by farmers who sold their crops through their Association was far in excess of the general market average.

"Our Association is no cure for all your ills 100%, no more than religion will save all eternally, or law will prevent crime," said Mr. Gardiner, "but if you will cooperate with us, we will make the home and land you have give more promise of a substantial living, comfort and happiness in the future."

Speaking on the method of selling the Maryland crop, Mr. Gardiner said, "You have voted to maintain your Baltimore Market and your Association in carrying out your wishes is not going to erect auction houses, as others have done, to eventually ruin you and Southern Maryland."

Mr. Gardiner fully explained the marketing problems of 1940 and just what was done to accomplish the higher average price. "The very things that make the price and control the conditions and demands under which your tobacco is sold are the things you think least about."

The meeting was held on Farm Bureau Day during the convention of the Maryland Farm Bureau and its affiliated organizations.

The following resolutions were adopted by the tobacco growers, which resolutions were turned over to the Farm Bureau to be embodied with their resolution report:

Tobacco Marketing

We express our appreciation to Governor O'Conor for the appointment of a Committee to study the problems of tobacco marketing in the State. The Farm Bureau will gladly support any effort to protect the producer and to aid them in overcoming their problems in marketing this important crop.

Market Reporting

We recommend that the State law now in effect requiring tobacco sellers on the Baltimore Tobacco Market to report pounds sold and price received be amended to require the same type of reports from Auction Sales floor operators and speculators buying on Auction Markets.

Tobacco Curing

In view of the tremendous losses sustained by tobacco growers because of house burn or pole sweat, which frequently amounts to more than a million dollars; and in view of the fact that no work has been done on tobacco curing and no funds appropriated by the Legislature for such work, we endorse the request of the Maryland Tobacco Growers' Association for an appropriation of $15,000.00 for this purpose; $10,000.00 to be used the first year and $5,000.00 the second year, to conduct curing investigation by the University of Maryland Experiment Station.

The Association, realizing the tremendous loss caused by house burn and improper curing to the Maryland tobacco grower each year, is extremely interested in seeing that some experimental work be done along this line in order to determine the proper conditions under which tobacco should be cured. With this in mind, we are heartily in accord with the resolution that the proper appropriation be made for this work. In following this matter to a conclusion, the Maryland Tobacco Growers' Association has an appointment with the proper officials of the University of Maryland, February 5th, to outline a plan to conduct such experiments and to prepare the way for favorable legislation regarding the necessary appropriation.

Sixth Annual Summer Meeting

OF THE

MARYLAND STATE POULTRY COUNCIL

Elkton, Maryland, July 31, 1940

President Harry H. Rieck called the meeting to order and introduced the speakers, who gave the following presentations:

SOME PROBLEMS CONCERNED WITH THE PULLORUM DISEASE CONTROL PROGRAM

H. R. BAKER, State Poultry Pathologist, Dover, Del.

During the last fifteen years pullorum disease, one of the most devastating diseases of poultry, is gradually being brought under control. This long campaign has been held back by a good many problems, but as these problems are understood the work is showing more and more progress. Up until recently hatching egg production for commercial hatcheries was carried on as a side line by farmers owning small flocks and was not their principal source of income. This usually meant that proper management and feeding of the flock might not receive as much attention as the dairy herd or field crops raised by the farmer. Whereas, New England poultrymen, with poultry as their main source of income, gave more attention to raising of better stock. Up until recently, it has been difficult to get our flock owners to raise better stock with a pullorum-clean rating because the flock owner said that the hatcheryman would not pay him enough premium for the eggs to warrant the extra expense. On the other hand, the hatcheryman maintained that he was paying all he could for the quality of eggs he was receiving from the flock owner. This condition is fast disappearing and more and more eggs are now produced locally. This has also encouraged the raising of larger and larger flocks by farmers who are really becoming poultrymen.

Poultrymen starting a pullorum-clean flock should dispose of all old birds and thoroughly clean out and disinfect the premises before brooding pullorum-clean chickens. It is a problem to convince some farmers that this is the thing to do, because it leaves a considerable time without an income from their old birds, but in the end it is less expensive than trying to clean up the infection in the old birds. When it is necessary to

eradicate the pullorum infection from an old flock, difficulty is encountered in finding all of the reactors in the flock, and in the early days of the eradication program many of the reacting birds were claimed by the flock owner as being unable to be found. Leaving these spreaders of infection in the flock meant more times to retest.

A constant problem with us in our eradication work has been lack of understanding by the poultryman of the difference between "pullorum-clean" chickens and chickens advertised as "blood tested." Misleading advertisements of hatcherymen who were not participating in the official eradication program has increased this problem and has delayed many people from receiving a pullorum-clean certificate. Bazaars and sales stables have given us some trouble in distributing pullorum infection. Many times surplus chicks sent in from the Middle West are re-sold by chicken brokers as blood tested chicks to people who do not understand the terminology used by these chick sellers.

Another problem that we encountered in the early days of the project was custom hatching of eggs from non-tested stock in the same machine with eggs from flocks that had been fairly well cleaned up.

Several years ago we tried the use of the rapid whole blood test. This test was found to be of value in heavily infected flocks, but we lost ground in trying to produce pullorum-free flocks. We have had the problem of the unintentional purchase by the flock owner of chickens not pullorum-free by some of our poultrymen that raise both broilers and breeding stock. As the educational program takes effect, such a problem should be less and less.

Pullorum disease eradication has been carried on extensively since 1925, although a few flocks were blood tested as early as 1921. At the present time, there are nineteen hatcheries with a capacity of 1,000,000 eggs cooperating with the State Board of Agriculture. There are forty-nine hatcheries in Delaware with a total capacity of 2,828,000 eggs. Our Department is also blood testing flocks of several other hatcheries which are not under official supervision. Their capacity represents another 1,000,000 eggs. Of the 600 flocks, representing 201,832 birds blood tested last year, there were a few over 400 pullorum-free flocks with 214 of them having a pullorum-clean rating. Five years ago there were only four clean flocks in 288 flocks, representing 67,600 birds blood tested. Ten years ago, in 162 flocks representing 45,700 birds, there was only one clean flock. The average per cent reactors has been reduced in the last ten years from 7.4% to 2.3%.

FACTORS THAT AFFECT PROFITS IN EGG PRODUCTION

ROY E. JONES, Extension Poultryman, Storrs, Conn.

Under existing price relations, there is very little profit in straight wholesale market egg production. According to poultry farm management figures, profits come from diversity within the industry which

helps to step up gross receipts and does not necessarily greatly increase the investment.

I would like to list three "musts" for poultry profit as follows:

1. A poultryman must have good breeding stock.
2. He must grow good young stock.
3. He must keep accounts.

Accounts are a yardstick with which it is possible to identify and increase profitable activities and eliminate unprofitable activities. This yardstick may be read in terms of labor income. Labor income is that amount of money that may be credited to the operator's labor after paying all expenses plus interest on owned capital. In making this calculation, the entire farm, including the home, is included in the investment.

Average labor income from year to year changes with the variation in price relations. In 1933, the labor income on 33 poultry farms in Connecticut averaged $501. In 1935, under more favorable conditions, 49 farms had an average labor income of $1,692. In 1937, when price relations were again unfavorable, the average labor income on 105 farms was down to $610. In 1938, the average labor income on 128 farms was $1,281, while in 1939 the average labor income on 121 farms was $1,081.

The labor income on individual farms varies with individual ability and can be greatly improved by applying the six poultry efficiency standards which follow:

TABLE I

Six-Point Poultry Efficiency Program

Practices and Standards Necessary for High Cash Return

1. High egg production per hen	Hen days—185 eggs per bird. Hens housed—140 eggs per bird.
2. High egg production during October and November	30 eggs per bird. 15 eggs per bird per month.
3. Low hen mortality	Not more than 10% per year.
4. High sales relative to fixed costs	Sales 75% of total investment.
5. Efficient labor	1,200 hens per man or $5,000 sales per man, or $5 per $1 labor cost.
6. Volume and diversity of industry	Gross sales $8,000 or more sales other than eggs and poultry.

High egg production of 180 eggs or better is necessary for satisfac-

tory returns. The range in egg production was from 236 eggs per bird on the best farm down to 118 eggs per bird on the poorest farm. The average pullet production on all farms was 181 eggs. The average hen production on all farms was 132 eggs.

These figures indicate that there is no economic reason for keeping old hens except as breeding stock.

When we break the farms up into groups on the basis of egg production, we find a very definite relation to labor income as shown in the following table:

TABLE II

Relation of Egg Production per Bird to Labor Income

Av. Egg Production (eggs per bird)	No. of Farms	Labor Income
Under 150	9	$ 392
150-159.9	14	673
160-169.9	19	811
170-179.9	21	1,011
180-189.9	18	1,281
190-199.9	15	1,607
200 and over	25	1,520

High egg production is not the only requirement, as high egg production during the season of high prices in October and November is just as important as high egg production for the year.

The highest production for these two months was 40 eggs per bird, while the lowest egg production was only 8 eggs per bird. This requirement could be stated in another way; namely, that it is important that a larger volume of egg production be obtained from July 1 to December 31 than from January 1 to June 30. In order to do this, it is necessary to hatch early, bring pullets into production in July and August and carry a large proportion of the old hens through the fall months at the same time. With this procedure, it is necessary to have healthy, high-production stock and practice what we have called the Barracks System. This involves the use of large brooder houses for early brooding, which may be used as laying houses during the summer and fall, or the use of summer laying shelters to make additional laying hen capacity during the summer and fall.

When farms are grouped according to the October and November production, the relation to labor income is shown in the following table:

TABLE III

Relation of Fall Egg Production to Labor Income

Eggs per Hen Oct. 1-Nov. 30	No. of Farms	Labor Income
15 or less	8	$ 142
15.1 to 20	13	569
20.1 to 25	23	777
25.1 to 30	44	1,219
30.1 and over	33	1,605

Low mortality is another requirement for high labor income. The range in mortality on different farms was from 2 percent on the best farm to 35.4 percent on the poorest farm. When farms are grouped according to mortality, the relation to labor income is shown as follows:

TABLE IV

Relation of Mortality to Labor Income

Percent mortality (laying flock)	No. of Farms	Labor Income
Over 15	22	$ 306
12.0-14.9	15	492
9.0-11.9	40	1,161
6.0- 8.9	26	1,366
Under 6	18	1,492

Another important measure of the value of low mortality may be recorded in terms of salvage value of the flock. The salvage value in percentage is the relation between the laying flock inventory at the beginning of the year and the laying flock sales and the inventory at the close of the year. Some flocks run as low as 25 percent salvage value while others run up to 90 percent salvage value. A good flock should show at least 65 percent salvage value.

The efficient use of capital on a poultry farm is recorded in the relation between cash sales and fixed costs. The lowest farm in this respect had only 13 cents sales per $1 invested, while the best farm had $1.38 per $1 invested. The average of all farms was 62 cents per $1 invested. For a satisfactory return, the farm should sell at least 75 cents worth of products per $1 invested or a cash sale of 75 percent of the total invested. When farms are grouped according to sales per $1 invested, they appear as follows:

TABLE V

Relation of Cash Sales Per $1 Invested to Labor Income

Cash sales per $1 inv.	No. of Farms	Labor Income
(cents)		
Over 100	13	$2,462
80-99.9	14	1,944
60-79.9	31	1,275
40-59.9	41	720
Under 40	22	112

Large farms are usually more efficient in sales per $1 invested than small farms because the investment per hen usually decreases when the number of hens increases.

Labor efficiency on poultry farms may be recorded in terms of receipts per $1 labor cost, including an allowance of $1,000 for the operator's labor. The lowest farm in this respect reported only $1.21 sales per $1 labor cost, while the highest farm had $9.50 per $1 labor cost. The average was $4.43 sales. For a satisfactory labor income, the sales should be at least $5.00 per $1 labor cost.

Farms classified according to earnings per $1 labor cost appear as follows:

TABLE VI

Relation of Gross Receipts per $1 Labor Cost to Labor Income

Gross Receipts Per $1 labor cost	No. of Farms	Labor Income
Below $2	8	$ —89
2.00-2.99	21	189
3.00-3.99	25	721
4.00-4.99	30	1,150
5.00-5.99	24	1,839
6.00-6.99	8	2,228
7.00 and over	5	2,597

Other standards that may be used in measuring labor efficiency are 1,200 hens per man or $5,000 sales per man.

Volume and diversity of industry, as measured in terms of gross sales is an important factor in poultry farm profit. The smallest farm studied reported the sale of $1,573 worth of products, which was obviously too small a business to maintain a home and net a profit. The highest farm reported sales of $35,216. The average sale per farm was

$7,539. To return a fair labor income, a farm should have a sale of at least $8,000.

The relation of labor income to volume of sales is shown in the following table:

TABLE VII

Relation of Gross Sales to Labor Income

Cash Sales	No. of Farms	Labor Income
Below $3,000	16	$ 266
3,000- 6,000	49	629
6,000- 9,000	22	954
9,000-12,000	16	1,328
12,000-15,000	8	2,399
Over 15,000	10	3,423

Diversity within the industry is an important factor in stepping up gross sales without greatly increasing the investment. Under diversity, we may consider wholesale eggs, retail eggs, hatching eggs, day-old chicks, broilers, roasters, capons, ready-to-lay pullets, and breeding stock, whichever may work in best with the particular farm setup or market outlets available.

The six poultry efficiency factors listed with standards in Table I at the beginning of this article are all of vital importance in stepping up poultry farm earnings. When we list the effect of these factors in terms of the number of any one of the factors in which farms may be above average, we find a very definite relation to labor income as shown in the following table:

TABLE VIII

Relation of Labor Income to Combined Profit Factors in Which Poultrymen Are Above Average on 128 Connecticut Farms

Number of Factors Above Average	Number of Farms Involved	Labor Income
0	14	$ 292
1	18	420
2	21	400
3	33	762
4	19	1,644
5	15	1,928
6	11	2,307

A study of individual farm accounts over a period of years where these factors have been used to indicate changes that should be made shows a marked improvement in labor income. Several farms where accounts have been kept consistently for a period of years have grown from a very modest beginning to a labor income of better than $5,000 per farm. These farm management figures would indicate that the time a poultryman spends keeping accounts is the most profitable time spent from the standpoint of earnings.

Following Prof. Jones presentation many questions were asked by those present and considerable discussion of points in the tables presented ensued.

GETTING THE BEST PRICE FOR YOUR MARKET EGGS

CHAS. H. PEARSALL, Manager
Hamden Co-op Poultry Auction, Hamden, Conn.

The topic of my talk could be answered with three words, "By Co-operative Action," but the entire story cannot be explained so easily, although cooperative action is the basis which has made it possible to obtain good prices for eggs produced by our Connecticut poultrymen.

The poultrymen of Connecticut should be given credit for having had more foresight and initiativeness than many of our neighboring state poultrymen, as is shown by the fact that over 16 years ago, two co-operative pooling associations were established to sell eggs: namely, The Connecticut Poultry Producers, Inc., and the Eastern Connecticut Poultry Producers, the latter organization having its headquarters in Providence, Rhode Island, but receiving its supply of eggs from Connecticut. These two cooperatives are still in existence, doing a combined gross business of approximately $1,000,000 per year.

These two cooperatives are contract associations. The Eastern Connecticut Producers have a membership fee of $25.00. The Connecticut Poultry Producers had a membership fee of $25.00 up until 1938, at which time it was reduced to $5.00. At that time the association also liberalized its contract. Unfortunately for these associations, that was the period (1930 to 1938) when we in Connecticut experienced the most rapid expansion the industry has ever had. If, during that period the above-mentioned associations had been operating under a smaller membership fee and a more liberal contract, their membership would have been much larger and the associations would have been even stronger than they are today.

As is natural, many entering into the poultry business do so in a small way, many times establishing retail routes or operating road-side stands. These poultrymen often grow and after a few years operate very sizeable poultry farms. It has been this type of producer who has been excluded from the pooling associations, who has literally flocked into the non-contract, low membership fee, auction association.

Now, to go back to 1932, when the rapid increase in the number of broilers coming on the market, and a corresponding increase in the number of fowls were causing a rapid drop in prices, selling conditions on the farm were becoming almost unbearable. The itinerant poultry and egg buyer was fully aware of the over-supplied condition which always limits the number of outlets and was driving hard bargains. The producers were being forced to accept their offers because they had no choice. This situation made our producers realize something had to be done and individual effort was not the answer.

It may seem strange to some that the producers of Connecticut should have marketing difficulties when we consider the geographic location of the state in relation to its nearness to large markets—New York at the front door and Boston at the back door, not to mention the cities of Hartford, New Haven, Bridgeport and Waterbury within its borders. But keep in mind that the expansion of the industry was not confined to Connecticut, but extended throughout the entire country and many eyes were on the large Eastern markets; so it was that the Connecticut producers had to resort to greater cooperative effort in order to hold even a portion of the nearby market outlets which were being lost at a rapid rate due to heavy supplies from much lower production cost areas.

It was this bad condition which drew action from the marketing committee of our State Poultry Association. This committee, with the excellent assistance of several of our State agencies, helped our poultrymen establish two cooperative poultry auctions; one located just outside of New Haven, and the other outside of Hartford. This was in April, 1933. These two auctions were set up mainly for the purpose of giving our poultrymen added outlets for live poultry, it being generally felt that the two pooling associations were providing an ample outlet for market eggs. But, to the astonishment of all interested parties, the auctions right from the very first sale were called upon to sell eggs.

On the first sale of the Hamden Auction, two cases of eggs were received for sale; as the price received was satisfactory, the volume increased. From the first sale held April 23, 1933, until December 1 of the same year, the number of cases of eggs increased from 2 to 190 per sale. While this increase certainly was not excessive, the prices we were receiving were far from satisfactory and the reason was this: The eggs were being sold without any inspection by the Cooperative, without an identifying label, and we were unable to guarantee the eggs as to size or quality; we were not even sure the cases contained a full 30 dozen. There was one thing we were proud of and that was the top layer of each case, always full, always clean, and extra large in size, but from the second layer down, only the producer and Good Lord knew the truth. By December of the first year, when we were selling the eggs in such a messy manner, the buyer had gotten smarter; his knowing we had no check on the eggs was swamping us with claims of short

count, bad eggs, bloods and cracks. As time has gone on and I have become better acquainted with the attitudes of some members of cooperatives, I begin to feel that many of those claims may have been justified.

At that time, we had a very energetic young man as chief egg inspector in the Bureau of Markets at Hartford, James M. Gwin. With Mr. Gwin's assistance, a label was made up setting forth quality and size to correspond with the existing fresh egg laws of the state and both of our cooperative auctions changed to the inspecting of eggs and using the new label, which enabled us to guarantee the eggs we sold. When the auctions changed to selling labeled, guaranteed eggs, we had to resort to sample inspecting; that is, candling 100 eggs in each case, 10 eggs in each layer. Both associations operated under similar rules in regard to the manner of receiving eggs from our members. We were asking the producers to do their own grading as to size, also to fully candle.

This change did more for the poultrymen of Connecticut in their efforts to receive better prices than any one single action from the time the poultry industry started its upward climb to prominence in agriculture. The reason for that statement is this: While the pooling associations had been in operation for some 9 years previous to the establishment of the auctions, they had always rendered a complete service to their members, such as complete candling and grading. This being the case, most of the poultrymen, while being members of a cooperative, were not familiar with the candled appearance of high or low quality eggs, and few, if any, owned egg scales. If any size grading was done, it was largely on the basis of wishful hoping that the eggs were in the right grade. So it was that producers selling through the auctions were more or less forced to acquaint themselves with the state quality and size grades. I dare say that there is not one poultryman in this room who has not experienced the feeling when collecting eggs that a very large percentage of the eggs would grade large, only to find out he had guessed wrong by about 20%.

Along with forcing members into better acquaintance with the eggs they were producing, the auction method of selling eggs under each member's number and giving the gross weight of each case made both the buyer and producer weight-conscious. Heavyweight cases always bring premium prices, so naturally producers began improving egg size by more careful breeding. In 1934, approximately 35% of the large eggs received ran 57, 58, 59 pounds gross weight per case, and at certain times of the year as high as 60%; while today, only 10% or 20% of the large eggs received are under 60 pounds per case. In other words, 80% to 90% of the eggs are premium weight eggs. This combining of increased size with greatly improved quality has enabled us to get our poultrymen good prices and we have found them much easier to sell during the heavy surplus periods and in increasingly competitive markets.

With this increased size, we still have the problem of educating our poultrymen in the importance of uniformity in size grading, particularly in the large grade. Our state law states that the large eggs shall average 24 ounces per dozen, with no individual egg being less than at the rate of 23 ounces per dozen, with no limit on extra large eggs. As our Connecticut poultrymen are just as human as any other group of poultrymen, they strive to get just as many eggs in the large grade as possible, even to the point of making a very undesirable pack from the buyer's viewpoint. My own feeling is that the buyer is 100% right in his complaint, for certainly a dozen eggs containing 1 or 2 23-ounce eggs and 1 or 2 30-ounce eggs is mighty unattractive. There is the extra handling cost due to breakage of these extra large size eggs as well as the unpleasant complaints of the housewife, who feels that the retailer is cheating her because of the great spread in the weight of each individual egg in the dozen she has purchased. Her one thought is that all of the eggs should have been 30-ounce eggs.

One of the great selling points which the Pacific Egg Producers used in more or less monopolizing the premium outlets of our Eastern markets was the uniformity of grading, which creates a very attractive package.

It is my hope that before long our state grades will be revised, creating a jumbo grade which will include all eggs weighing 27 ounces or over. But just as long as the state grades remain as they are, we must rely on our cooperatives to educate their members to the need of making a more attractive pack. Our pooling associations who do a full grading service for members are making a jumbo grade and the auctions are accepting and selling part cases of jumbos. Many auction members, being small producers, are not able to ship a full case of extra large size eggs.

Our egg buyers as a whole are business men who believe in honesty and fair dealing, a statement which cannot be made in connection with live poultry dealers, generally speaking. We have had some trouble with egg buyers, principally small jobbers, and on rising markets. It has been their habit to hold eggs under unfavorable conditions for too long a time and then sell as fresh arrivals. As the cases were auction labeled, we received most of the criticism on poor quality, but this condition has not been too irritating.

The large chain stores operating in our state have been very cooperative in helping to move surpluses that exist at certain times of the year. Our Connecticut poultrymen would most certainly not have received this help if it had not been for the cooperatives accumulating in three or four central locations sizable volumes of our native eggs. The accumulating of supply for retail distribution by the large chains is a big job and, generally speaking, they are not much interested in dealing directly with small producers. We hear occasionally of some chain store group, or possibly one of the large meat packing houses, being struck with

the idea that they can make money by direct dealing. It usually takes about six months for them to realize it is much better for cooperative groups to accumulate the volume and they quietly withdraw from direct dealing with small producers.

We have in New England a cooperative advertising agency known as The New England Fresh Egg Institute which is proving to be of outstanding value in publicizing our native eggs and is helping us in our efforts to obtain a little more money for our eggs. The Institute is financed by the egg cooperatives, some direct contribution from allied industries such as feed companies and poultry equipment dealers.

I cannot express forcibly enough the real need of quickly awakening to the advantages of cooperative action if you want to remain in business. Margins of profit are getting so small, it is the only way you will be able to carry on. Individuality is a fine thing; it is the basis of democracy, but can we, in such troubled times, when business conditions change almost over night, cling too tightly to the ideas of individualism.

You Maryland poultrymen have witnessed a tremendous growth in the poultry industry of your state in the last five years. You have a very fine poultry department at the University. You have outstanding men in the department, ready, willing, and able to assist you in any progressive move you wish to make, and yet you have not taken that final and important step of associating, and supporting by your patronage, cooperative action to as great a degree as you should.

When you join a cooperative marketing association, you are adding a sales department to your farm operations. A poultry producer is in a sense a manufacturer. One reason why agriculture has been lagging behind industry is because it has been too slow to apply business methods. Production management, purchasing, and selling are jobs which today, more than ever, require experts. The manufacturer of hats, shoes, hardware, or automobiles knows he cannot become an expert in all three jobs so most times he manages production but hires a purchasing agent and a sales manager. As an individual you could not stand that expense, but by joining and supporting a cooperative you can have the same efficiency as the manufacturer and at a mighty small cost. The paid members of the Hamden Auction have done just that; during 1939, it cost those members less than 9c per day to own and operate their sales department. Their sales manager was hired at the rate of less than 1c per day for each of those members. But these things can only be accomplished by cooperative action.

Cooperative Associations are not miracle organizations. They cannot get you 50c a pound for broilers or $1.00 a dozen for eggs when the true market value is only half that much. You should join a cooperative with the fact in mind that it is the most orderly and economical method of selling your products that is known today, even to the point of being willing to receive a little less than elsewhere while the Association is establishing itself, as greater benefits will be received as time goes on.

Becoming a cooperative member is somewhat like marriage; one must be willing to give and take. A man needs a wife and a wife needs her husband. The cooperative will need you and you need a cooperative. The sense of security is worth while.

I would like to quote a statement made by Dr. A. G. Black, Governor, Farm Credit Administration, with whom I agree 100%. I quote, "In my opinion, agricultural cooperation has at least two inherent characteristics which give strength and permanence to its success and growth. The first of these is democracy in business; the second is adaptability to changing conditions."

In conclusion I will end this more or less behind the hen house talk with the statement I made at the start: The topic of my talk can be answered with three words, By Cooperative Action.

SATISFACTORY POULTRY RATIONS FOR MARYLAND CONDITIONS

DR. H. R. BIRD, Poultry Department, University of Maryland

Satisfactory poultry rations must be satisfactory not only from the nutritional standpoint, but also from the economic standpoint. The economic standpoint has been emphasized in recent months by considerable increases and fluctuations in the prices of certain feedstuffs and by the relatively high prices of feeds in relation to prices of poultry products. It becomes necessary then in formulating a ration or feeding program to consider each feedstuff's contribution to the cost of the ration as well as its contribution to nutritional completeness.

The following are the mash formulas recommended by the Poultry Department of the University of Maryland:

	Starting Mash	Growing Mash	Laying Mash
Ground No. 2 yellow corn	500 lbs.	660 lbs.	590 lbs.
Ground heavy oats	300 "	200 "	200 "
Wheat bran	300 "	300 "	300 "
White flour middlings	300 "	400 "	350 "
Soybean oil meal (high temperature expeller process)	100 "	100 "	150 "
Alfalfa leaf meal	100 "	100 "	100 "
Meat scraps (50% protein)	150 "	80 "	150 "
Fish meal (steam or vacuum dried)	100 "	80 "	80 "
Dried skimmilk	150 "	80 "	80 "
Cod liver oil (85 units D per gram)	20 "	20 "	30 "
Ground oyster shell	20 "	25 "	40 "
Salt	10 "	15 "	15 "
Manganese sulphate	¼ "	¼ "	—

The laying mash and growing mash are designed to be fed with scratch grain and with extra limestone or oyster shell supplied in hoppers. Growing birds should also have pasture. The starting mash should be fed as an all-mash, but after the chicks are well started small amounts of grain may be fed with it, if desired.

These mashes were worked out with the idea of fitting them to general Maryland conditions. Numerous modifications are possible to meet specific requirements. However, it should be kept in mind that such modifications cannot usually be made merely by substituting one ingredient for another. Almost any such substitution requires adjustment at some other point in the formula. For example, if it is desired to make greater use of home-grown grains, these may be substituted for part or all of the bran and middlings, but this change requires increases in the amounts of soybean oil meal and of meat scrap or fish meal.

On the subject of economy, it may be said that the cost of the laying and growing mashes may be most effectively reduced by substituting direct sunlight for cod liver oil. If conditions are such that the birds are exposed to direct sunlight during the greater part of every bright day, it should be possible to omit all the cod liver oil from these two mashes during the late spring, summer and fall. The cost of the starting mash may be most effectively reduced by reducing the amount of dried skimmilk and including a brewery or distillery by-product of which there are several on the market. These by-products are also important in permitting the formulation of low-cost broiler mashes.

Good, green, actively-growing pasture permits the use of more economical mashes for both laying and growing stock provided one is not interested in producing pale yolked eggs. The deep yellow yolks of pasture eggs constitute an objection in many quarters to the use of pasture for laying hens.

Meeting recessed at 12:30 and reconvened at 1:30 P. M.

AFTERNOON SESSION

The following speakers were introduced and presented discussions at the afternoon session:

RESULTS WE HAVE SECURED IN PROGENY TESTING UNDER MARYLAND-U. S. RECORD OF PERFORMANCE WORK

WILLIAM BLUM, Ayrlawn Farms, Bethesda, Md.

In times like these we have to have poultry that really produces and returns us net profits in order to stay in business.

We started in Maryland R. O. P. work five years ago. Our birds had been bred through selective breeding to what we thought was a high degree of production. Not until we started trapping did we realize what a task lay ahead of us. Being also a commercial egg producer, it has

had a great bearing on our production and reduction of laying house mortality. We have carried 2,500 birds per year for the past six years and also have not changed the management practice of our birds to offset the progress we made in our breeding operations. Trapping 450 to 500 birds a year gives us sufficient hens to keep our progeny testing program at reasonable cost. We keep Barred Rocks and White Leghorns, about equal numbers of each breed, and only hatch from birds that are two years old and over. We have 11 individual R. O. P. matings. The last three years we have only trapped birds from our best families and, if possible, all the daughters of the individual bird in order to get an accurate progeny record from each hen. We practice little culling among these birds until the end of their first laying year.

I hope that most of you in the audience know the principal requirements of Maryland Record of Performance and what it means to the Maryland poultryman. In Maryland R. O. P. work a hen has to lay 200 eggs per year, average egg weight 24 ounces and also have standard body weight and other qualifications. After the birds once have made their official record, they have so far been of no value to us. All this work has been done to select birds that have demonstrated the ability to lay eggs of the right size and color. Now, the best of these are moved into R. O. P. individual breeding pens for the next season. Great care is taken in the selection of the males to head these matings. We select only a male which has demonstrated his ability to transmit to his daughters, or which has sisters that are making good records.

Our work now has just begun The offspring from these matings will tell the story. The value of these breeders depends on the performance of his or her daughters and sons in the laying and breeding houses. For instance, if a hen has laid 300 eggs and her offspring in sufficient numbers does not prove satisfactory, the hen is discarded as a breeder. On the other hand, we find quite often hens that have laid 200 to 225 eggs which possess outstanding ability to transmit the desirable characteristics to the next generation. These hens, although they have not made outstanding records for themselves in so far as production is concerned from the progeny standpoint, may be superior to many 300-egg hens. So, the trapnesting of a pullet during her first laying year is just a beginning which must be followed up by pedigreeing her offspring and checking their production. While production is one of the main points, there are many others we have to take into consideration, such as hatchability, livability, as chicks and layers, size, shape, color and interior quality of the egg.

In the course of our breeding operation we have paid particular attention to laying-house mortality which can lower your average hen house production a great deal. We have lowered our laying house mortality by breeding from families that have very low mortality during their first laying year.

I would like to give you a little idea of what we are doing and have accomplished under the Maryland R. O. P. work, in a chart I have pre-

pared from our records. This is to prove the value of a good breeder and a poor one may be a male or female. These are actual records we have made on our farm.

Superior Breeding Females

Dam No.	Dam's Pro.	Daughters		% Qualified	Production	
		Entered	Qualified		Qualified Daughters	All Daughters
9	203	8	5	62.50	248	208
221	224	24	14	58.30	257	207
11	286	9	1	11.11	254	113
9	1937	14	7	50.50	.....	.....
9	1938	8	5	62.50	.....	.....
	1939	7	5	71.40	.....	.....

Note the difference between hen No. 9 and hen No. 11 in their ability to transmit production qualities to their daughters.

Superior Breeding Males

A	229	74	32	43.20	.....	.....
B	240	77	13	16.80	.....	.....

Here we have a wide variation in the male's ability to transmit production qualities to his daughters.

These illustrations point out that production alone is no indication of a bird's breeding worth to a poultryman. Progeny testing is the only sure means of identifying superior as well as inferior breeding birds.

Maryland's average production per hen is still 110 eggs per bird and there is a lot of room for improvement. Most people buy on price alone. They don't realize that a chick from good stock or to be more specific, from good breeding, is well able to produce more economically than a chick from ordinary breeding. While there may be no difference in the growing period, the performance as a layer is a lot more profitable. Competition is very keen today in the poultry business, so that if you want to make any money, you simply have to get production.

As an illustration, just take our farm. The first year we used R. O. P. males in our certified breeding flock, we increased production 10% the following year and have increased it more every year, also decreasing mortality. That's how we can raise the production in Maryland by using better breeding stock. It is not necessary to buy pedigreed chicks in order to get good stock. Most R. O. P. breeders produce a large number of pedigreed, wing-banded chicks. Thousands are sold to hatcherymen in the State who use them in their breeding flocks. I would say that R. O. P. breeders are more valuable from the standpoint of distribution of pedigreed chicks than through any other means. They also produce large quantities of certified chicks which are produced through the use of pedigreed cockerels and are available to the Maryland poultryman.

I frequently hear Maryland hatcherymen say, "We can't afford to buy R. O. P. males," it is less than half a cent a chick and in many cases much less. If a pullet produced by an R. O. P. male only laid ten eggs more than a pullet produced by an ordinary male, and eggs at 24c per dozen, this would mean 20c a bird income or on 1,000 birds $200, which often means the difference between profit and loss. You can realize how much that would mean to our poultry industry in Maryland if all the chicks would be sired by R. O. P. males. It would amount to $650,000, which is well over half a million dollars annually.

I hope you will take home with you some of the points I have tried to bring out as we all are in the poultry business to make money.

OUR EXPERIENCE IN RECORD OF MERIT TURKEY BREEDING WORK

MRS. A. W. SATTLER, Monkton, Md.

We have just heard about the excellent records Mr. Blum's chickens have made. I know as Marylanders we are very proud of his work.

Chickens have always been ahead of turkeys; the turkey breeders have been following in the footsteps of the chicken breeders. In the last twenty years turkey raisers have made wonderful strides until now they are not far behind the chicken raisers. It is due to the fine, capable, and intelligent people that this has been accomplished. I met most of the prominent turkey breeders in Cleveland last summer at the World's Poultry Congress, and whether they came from North or South, East or West, they were all of the same high calibre. The Maryland turkey breeders, in a small group under the leadership of Mr. Wade Rice, met at Annapolis about four years ago and drew up the Maryland Turkey Breed Improvement Plan. They patterned it after the Tentative United States Breed Improvement Plan for turkeys, only they made a much stiffer plan. They even required all turkeys to be pullorum tested by the tube method.

I could go into detail about this plan and about what we have been doing on our farms, but it is too hot for me to give my prepared talk and it is too hot for you to listen. I will be glad to answer any questions about our turkeys and am sure you can secure from Mr. Rice, the Maryland Turkey Breed Improvement Plan. Then, you can read it in comfort when it gets cooler.

Just glancing at the plan you will see it has three breeding stages. I like to think of it as a three-graded school where the turkeys progress as they get better. I do not believe anyone's turkeys are in the third stage where you have to trap-nest your hens. I should love to try it, but not with the present wing bands we are required to use—I shall tell you more about the wing bands later.

Getting back to my subject, "Our Experience in Record of Merit Turkey Breeding Work," this is the third year for us to try this work.

We have been keeping records for many years, but for only three years have we had our turkeys registered with the Maryland Breed Improvement Board and have had official records. The first year, one of my toms made the grade, so he was the first Maryland turkey to be an official Record of Merit tom. Better than that, I am told he is the first turkey in the United States to be an official Record of Merit tom. Last year I was not so fortunate for although I had very, very few losses, the turkeys were not there with the bands in their wings at the fall inspection. However, there were plenty of splendid turkeys walking around that could not be placed because their wing bands had been torn out. It is interesting to note that best results did not come from pens headed by the sons of my Record of Merit tom but from pens that contained his daughters. My two best pens were composed of his daughters. I really feel that those two pens would have made the records if we had had proper bands. I was delighted to find that the progeny of one of the toms passed the requirements 100% and the progency of another tom, 99%. One gobbler must have thrown no culls and the other very few.

This year, again a pen of his hens are very promising and also two pens of his grand-daughters mated to grandsons. I am very much excited about it, but I am afraid from the number of bands we have picked up in the brooder house, that we will have the same old story of previous years.

Perhaps you would like to know a few of the requirements:

Each hen must produce 200 eggs.

There must be a 65% hatch of all eggs set.

75% of all poults started must be on hand for fall inspection.

60% of the males and 80% of the females must pass the requirements of the approved stage—must be vigorous, well-shaped and meet Standard of Perfection requirements.

This sounds easy, but it is hard to get all of these demands into one bird. I know I could easily get a 75% hatchability by selecting small turkeys with shapes like the wild ones, but I would not guarantee heavily meated carcasses. I could also get heavily meated carcasses that put on meat economically, but I couldn't guarantee high hatchability. To get all of these qualities into one bird is the problem. It can be done and it must be done. It is a regular Japanese puzzle.

However, in fairness to our turkeys, I should like to mention some pitfalls or reasons why they have not made more records. First, I want to emphasize the kind of wing bands we are required to use. They are wrong and I have known it from the beginning, but one person complaining has little effect even though he makes plenty of noise. The bands are too heavy and large; they weigh down the little turkeys; they get caught in wire encircling them and caught in the thermostat. Turkeys are strong, they will tear their wings apart rather than stay fastened. The bands also cause too much handling of the turkeys. At the end of the first week you have to handle each turkey to see that the band is hanging to the front and hasn't slipped over the wing. If the band is

not put in place and pinched together, there will be a deformed wing. Again at three months, the turkeys have to be handled and the bands spread or there will be infections from pinched flesh. Even with all this work, some of the turkeys escape you and have bad wings. The whole performance seems such a waste of precious time, but I haven't enough brains to know what to do to improve the bands. Perhaps a tag could be put through the wing by a button or a rivet. In my own record work, I used to put bands on the legs for the first two weeks and then transfer them to their wings, but I realize that that could not be done for Record of Merit toms. Well, we are doing pioneer work and that wing band trouble will have to be ironed out.

Another pitfall is the improper handling of eggs. I do not think the hatchability should drop as it does when the season progresses. I believe the turkeys do their part, but we ruin their efforts by not taking care of the eggs.

I know this year I was able to step up the hatchability of my eggs by putting them in my underground turkey cellar where the temperature was low and the humidity high.

There is another pitfall that I have not been able to solve and that is the management of broody hens. A turkey hen has so much individuality that I am not successful treating a flock with any one system. Some require a night to break them up, some a week, and others are so stubborn that I do not know what to do with them. These broody hens ruin more than one egg in a season, they start them to incubate, kill the germ, and are the cause of some of our "clears" in our incubators. Our records would be so much easier to make if we could only get better wingbands, handle our eggs properly, and manage our broody hens.

These well-bred turkeys and ones with records are in demand. I could not begin to supply my poult orders this year and next year they are engaged every week until June. I got 75c apiece for my early poults and 50c for them after June 1. There is money in them at that price. Now, I guess you wonder why I do not increase my poult sales. I do not believe you can be a successful breeder and a big scale hatcheryman at the same time. I prefer to sell breeders and poults that are to be used for breeders. Customers tell me that they get uniform poults from me all through the season. From hatcheries the poults vary, the first shipment may be fine-shaped, short-legged birds, but the next shipment may be great, rangy ones. I know the hatcheries will hear these tales if they have not already heard them and will be looking around for good eggs and breeders. Every year more and more home flocks are being discarded and more day-old poults are being bought. The demand is now for good day-old poults.

Let me close with a story. Down South, two old darkies were talking.

One darkey said, "Yassir, I'se sure gwine to vote for Roosevelt." The other darkey shook his head and said, "Well, spozen George Washington, der father of our country, done come back from der dead and should run agin Roosevelt. Would youse vote fur Roosevelt?"

"Yassir, I'se sure gwine to vote for Roosevelt." Again he thought and said, "Well, sposen Abraham Lincoln—you know he done freed all us niggers—sposen he done come back, would you vote for Roosevelt?"

"Yassir, I'se sure gwine to vote for Roosevelt." He scratched his head and thought again, then said, "Well, sposen the Good Lord, hisself, done come back and run agin Roosevelt, would youse vote for Roosevelt?"

"Yassir, I'se sure gwine to vote for Roosevelt. The Good Lord says, 'Seek and ye shall find,' but Roosevelt says, 'Sit still and I'll bring it to you.'"

Now the turkey raisers want to sit still and have the turkey breeders bring it to them.

BUSINESS MEETING
MARYLAND STATE POULTRY COUNCIL

Elkton, Md.—July 31, 1940

President H. H. Rieck called the meeting to order at 3:55 P. M.

Appointments to Resolutions Committee: Mr. J. W. Snoddy and Dr. M. A. Jull to assist the Chairman, Mrs. W. W. Hopkins.

Roll call of voting delegates as follows: Prince Georges County Poultry Association—J. W. Snoddy, J. Morgan Everette, T. R. Betts; Dorchester County Poultry Association—A. R. Peterson, Walter W. Lankford, R. M. Hammen (absent). Queen Anne County Poultry Association—John H. Moffett, Mrs. J. Edgar Bryan, William Ratcliffe. Tri-County Poultry Association—Robert C. Street, W. A. Spearin, L. L. Colona. Cecil County Poultry Association—A. D. Condon, Emil Frantzi, J. A. Sten (absent). Caroline County Poultry Association—H. H. Rieck, Mrs. Mildred R. Kern, Perry Voshell (alternate). Talbot County Poultry Association—Mrs. W. W. Hopkins, Miss Agnes R. O. Tilghman, Ivon T. Morton.

Other associations eligible for membership had not certified their representative and paid dues as required by the constitution.

Reports of Committees:

1. Fresh Egg Law Enforcement

Your committee has investigated the enforcement of the fresh egg law and find that the inspectors have been making progress in the enforcement of the law. We recommend that the Council give its full support to the inspectors in the enforcement of the fresh egg law. On July 22nd I had a long interview with Mr. Shaw in reference to his method of enforcement of the fresh egg law, which I found to be satisfactory. He stated that he would rather have his office known as a helpful agency rather than an enforcing agency.

We would like to call to your attention that while the cost of inspection has averaged high per case of inspection, we feel that it is largely due to the required time in explanation to each individual of provisions of the law and needed changes in handling of eggs in order to meet the requirements of the fresh egg law.

We call to your attention the need of Mr. Downey visiting some of the Northeastern states where they have the fresh egg law properly working and satisfactorily enforced, to acquaint himself with their method of enforcement. The consumer, producer and the trade would be greatly benefited thereby.

Respectively submitted this the 31st day of July, 1940.

FRESH EGG LAW COMMITTEE,
John W. Snoddy, Chairman.

Statement on Enforcement of Fresh Egg Law

S. B. SHAW, Chief Maryland Department Markets, College Park, Md.

The President of the Maryland State Poultry Council has asked me to make a report of the Fresh Egg Law Enforcement. In order to make an intelligent report I desire to have the following questions answered.

		Salary	Travelling Expense
Number of inspectors employed	3	$3,400.00	$1,500.00
Number of full time inspectors	1	2,600.00	1,100.00
Number of part time inspectors	2	800.00	400.00
Clerical help	2	500.00	
Office expenses (Supplies)	$600.00		
Number of inspections made	896		
Number of violations found	295		
Number of violators warned	295	1st time - 295	2nd time - 36
Number of violators taken into court	0		
Number of convictions obtained	0		

What recommendations do you desire to make in regard to the fresh egg law enforcement?

We have no recommendations to make other than perhaps in the interest of seeing that more eggs are consumed. It might be well to consider some suggestions which have come to our attention with respect to the consumers' attitude which are given in the last heading.

From your contacts of the trade what attitude do you find most of the trade taking toward the fresh egg law enforcement?

The following report outlines briefly experiences thus far in this work.

From inspections which have been made in 822 retail stores and contacts made with clerks, managers and to a limited extent with consumers, there seems to be a feeling on the part of most, that the term "fresh" is associated with whether an egg has or has not been in cold storage, rather than with its interior quality. In some stores we have found that there is by far a more steady demand for B grade or Standard eggs and even for C grade eggs. Consumer inquiry, as to freshness, was apparently based largely on a desire to know whether or not the eggs purchased were or were not storage eggs.

As a result of such observations and from the contacts made, a large majority of retail distributors are in favor of supplying their customers

with good, edible eggs of uniform quality. Most of these distributors express the opinion that their only profit in selling eggs is where they have satisfied customers who return regularly for eggs.

While the majority of individuals whom we have contacted have responded favorably to the efforts put forth in explaining the purposes of the fresh egg law and indicate their willingness to cooperate, the concensus of opinion appears to be that, if the fresh egg law could be so amended as to permit the sale of standard or B grade eggs as "Fresh," a great deal could be accomplished in furthering the greater consumption of eggs.

In many instances we have found that where U. S. Standards or B grade eggs have heretofore been advertised as fresh, both chain and independent stores have, for the most part, complied with the suggestion that the term "fresh" be not used in the advertising of such standard eggs. In fact, we have noted that, in a number of instances, some of the larger chain stores, which have heretofore consistently advertised eggs, have now discontinued, for the most part, such advertising. It is believed that, if standard or B grade eggs could be considered as meeting the requirement of a fresh egg, a great many distributors would again take up the advertising and pushing of such products.

The majority of the trade, both wholesale and retail, seems to feel that some type of legislation is necessary to regulate the merchandising of fresh eggs. They, however, feel that such legislation should prohibit the sale as "fresh" only those eggs that have been in cold storage over a period of time or such eggs that have very low quality and have not been in cold storage. They seem to be of the opinion that any nearby, current receipt, or huckster eggs, as well as all producers' eggs, should be permitted to be sold as "Fresh," provided that such are of U. S. Standard or B grade quality or better.

Itemized Account of Inspections Made in Connection With the Fresh Egg Law Enforcement

Number of Inspections	896
Passed	350
Doubtful	4
Failed	213
Non-fresh	251
Part-passed	78
Meat	70
Grocery	196
Grocery and Meat	473
Super market	52
Farmers market	17
Delicatessen	31
Roadside	17
Home Sale	40
Jobber	449
Producer	447

Results of a Re-check of the Flagrant Violators in Baltimore City and Prince George's County

Re-check Made From July 1st to July 22nd, 1940

Passed		14
Non-fresh		38
Part-passed		0
Failed 28	Verbal	20
	Marked	8
Eggs better		20
Eggs worse		27
Eggs same		33

A report on the eight marked violators of the fresh egg law found in the re-check of Baltimore City, on July 30, 1940.

5 non-fresh
2 violators
1 unable to contact

Prosecution proceedings have been started against one violator.

The second violator showed marked improvement in the quality of his eggs and seemed to be making an honest effort to merchandise legally fresh eggs. For these reasons, the inspector agreed to give him more time to work on his source of supply.

Following an informal discussion of Fresh Egg Law violations as reported by Mr. Snoddy, he moved and Mr. Peterson seconded that the President of the Council be authorized to appoint a committee to assist Mr. Downey in prosecuting outstanding cases of violation of the Fresh Egg Law in Baltimore as reported. Motion carried.

President Rieck appointed the following committee for this function: J. W. Snoddy, chairman, Mrs. A. W. Sattler and himself.

2. Poultry Improvement Work

Dr. M. A. Jull gave an informal progress report citing the problem of hundreds of thousands of dollars being sent outside the state for hatching eggs and chicks, as a result of the lack of adequate local supplies to meet the needs of the broiler industry in Maryland and lack of pullorum clean flocks of good breeding. He pointed out the need for testing more flocks, as only about 20% of the flocks in Maryland were tested, which is far too low.

Dr. Jull reporting on the action of the Maryland Poultry Improvement Board meeting at noon today stated that the Board had gone on record as recommending that the tube agglutination test be the only test recognized officially in Maryland and that this method be used exclusively by the Maryland Livestock Sanitary Service, beginning with the 1941-42 season.

Further action of the Board recommended that a tolerance of 5% of reactors instead of the present 7% be the required maximum for classifying flocks as officially pullorum tested in Maryland.

3. Legislative Committee.

NEEDS OF THE MARYLAND POULTRY INDUSTRY

MR. JOHN CLARK, Chairman, Legislative Committee

An Appropriation of $25,000 for Poultry Disease Control and Inspection.

Maryland poultry producers lose considerably over one million dollars every year as the result of mortality among baby chicks, broilers, layers, and turkeys. Several diseases are responsible for these tragic losses, including pullorum, paralysis, typhoid, coccidiosis, and blackhead.

Over $500,000 are sent out of Maryland every year for hatching eggs and baby chicks because several states have adopted higher standards in controlling pullorum disease, which is transmitted from the dam to the chick through the egg. In order that Maryland flock owners and hatchery operators may receive this large sum sent out of the state every year, more pullorum testing work and more inspection work should be carried on. Those who purchase baby chicks and thousands of other poultry producers would benefit from increased disease control work.

An appropriation of $25,000 is needed to enable Maryland poultrymen and women to cope with the keen competition from outside sources and to reduce the appalling losses now suffered from various diseases. A potential saving of considerably over one million dollars annually is involved.

An Appropriation of $10,000 for Fresh Egg Law Administration Work.

Many carloads of market eggs are shipped into Maryland every year from southern states, the Middle West and the Pacific Coast. Some of the eggs are of good quality but a lot of them are of poor quality. Unfortunately, many of these poor quality eggs are sold in the Baltimore and other Maryland markets as strictly fresh eggs. A lot of the best eggs produced in Maryland are shipped to the New York, Philadelphia, and other markets because the Baltimore and other Maryland market prices are usually relatively low.

Consumers in Maryland want eggs of good quality and they want the merchants in Baltimore and other Maryland markets to sell eggs according to quality so that the consumers may buy with confidence. The proper enforcement of the Maryland Fresh Egg Law will do a great deal to promote the sale of eggs on the basis of their actual quality. Producers, distributors, and consumers would all benefit. There are several thousand merchants in Maryland who sell eggs. An appropriation of $10,000 is necessary to properly enforce the law by adequate inspection and the keeping of numerous records in the interests of all concerned.

An Appropriation of $1,800 for Turkey Inspection and Marketing Work.

By far the most of the turkeys grown in Maryland are marketed alive, which is a wasteful method of marketing poultry. In 1939, over 400,000 turkeys were raised and they returned to the producers over one million dollars. These returns could be increased considerably if well-finished birds were sold dressed instead of alive. Maryland turkeys already enjoy a good reputation, but Maryland producers are not in a position to capitalize on the reputation.

The Maryland Turkey Producers Association is sponsoring a plan of marketing a special grade of dressed turkeys known as "Sho' Nuff Genuine Maryland Turkeys." They have met with popular demand, but market outlets need to be expanded, and much educational work among turkey growers should be carried on to instruct the producers how to properly kill and dress their turkeys in order to get the greatest returns. In order to pass the grade, the turkeys must be well-finished and must pass a rigid inspection by a state inspector. An appropriation of $1,800 is requested to permit carrying on promotional marketing work and to permit the proper inspection of the turkeys that the producers will submit for grading.

An Appropriation of $7,215 for Poultry Improvement Work, the Inspection of Flocks, 4-H Club Work, Demonstrations in Killing and Dressing Turkeys, for Conducting Educational Work in the Nutrition of Broilers, Laying Stock, and Turkeys, and for the Development of Educational Exhibits.

It is necessary to improve and further develop the work being carried on under the provisions of the Maryland Poultry Improvement Plan, which has expanded tremendously in the last year, and which involves the cooperation of flock owners, hatchery operators, and Record of Performance breeders.

There is need for an assistant in the inspection of flocks and hatcheries and in the compilation of data from projects carried on by 4-H Club workers. Part of the fund would be used to engage clerical assistance in keeping records, particularly those of Record of Performance breeders and 4-H boys and girls. A portion of the item would also be used for developing educational exhibits; also for studying the possibilities of improving the broiler market situation, and for the purpose of carrying on educational work in the proper nutrition of broilers, laying stock, and turkeys.

There is urgent need for carrying on demonstrations in killing and plucking turkeys by the wax process method; demonstrations in the identification and grading of live and dressed turkeys; educational work in the economics of live and dressed turkey marketing and encouraging the establishment of better market outlets for Maryland turkeys.

Funds during the past two years have been inadequate to carry on the travel involved in attendance at meetings and demonstrations re-

quested by the poultry people of the State, especially with respect to poultry improvement schools and the inspection of flocks and hatcheries which cooperate with the University in poultry improvement work.

For all of these purposes an appropriation of $7,215 is urgently needed to improve conditions in the poultry industry in order that greater returns may be secured in the production and marketing of poultry products of superior quality.

4. Incubator Egg Law.

T. R. Betts reported difficulty in contacting other members of the committee, but after investigation he was convinced that a considerable quantity of infertile eggs were purchased from Maryland hatcheries for human consumption purposes, which was hurting the fresh egg market to some degree.

After some discussion concerning the need for a law in Maryland patterned after the New Jersey law, it was decided that additional facts were needed before definite conclusions as to the benefits of such legislation could be drawn. The committee was asked to enlist the aid of Professor Gwin and others to secure this information.

Report of Executive Committee and Directors, including Secretary's Report

Since our annual meeting in Baltimore on January 10, two meetings of your Directors have been held.

The first of these was a special meeting on January 10 in respect to our Fresh Egg Law enforcement. J. W. Snoddy, Chairman of the Council's Committee on Fresh Egg Law has reported in detail on the work of this committee.

1940 Summer Meeting: Your directors, meeting on February 22 at Annapolis, selected Elkton and July 31 as the place and date of the 1940 summer meeting. Your president, secretary, Dr. M. A. Jull, A. D. Condon, President of the Cecil County Poultry Association, J. Z. Miller, Cecil County Agent, and others have worked hard to insure a good program and facilities for a successful meeting. 2,000 programs were mailed, numerous news articles, circular letters and other publicity material issued.

Legislative Matters: Your officers with Dr. Jull and his associates, John Clark and others, have spent considerable time on a legislative program to benefit the industry. John Clark, Chairman of the Legislative Committee, has reported on these proposals and developments.

1940 Yearbook: 2,000 copies of the 1940 Yearbook were distributed to members of the industry and other interested parties in early February. The preparation of the material, the securing of advertising, printing, mailing, etc., entailed considerable work for members of the Yearbook Committee. Professor Gwin of the Poultry Department assisted by

Mr. Farlow and Mr. Hines did an excellent job on advertising which netted sufficient funds to nearly cover all cost of the Yearbook.

1940 Poultry Products Show: 320 entries of eggs and chicks by 162 exhibitors and 31 egg window displays were entered in the 1940 Poultry Products Show. Heavy snows and cold weather hampering travel and communications cut both entries and attendance as compared to other years.

State Fair Board Matters: Upon invitation by the State Fair Board, Council officers in cooperation with University officials nominated a poultryman for appointment to a vacancy on the Board. However, in the end, Governor O'Conor saw fit to appoint another party representing another industry of the state to this vacancy.

On March 2, your President and a committee appeared before the Board, requesting allocations of funds for the Poultry Products Show, a State Turkey Show, 4-H Poultry Club work and other projects of important concern to the industry.

These requests were deferred for later action and on July 19 Dr. Symons and your Secretary appeared before the Board in behalf of the Council's requests for allocations to various projects.

Action by the Board has resulted in the following allocations: $700 for expenses of a consumer educational exhibit at the Baltimore Food Show, $400 for prizes, and expenses of 4-H Poultry Judging and Demonstration teams at State contest at Timonium, $700 for prizes for proficiency in judging by adults and juniors at the 5 Poultry Improvement schools to be held in various parts of the state in September.

Old Business: President referred to matter of motion passed at meeting on January 10, in Baltimore, relative to amending constitution providing for election of treasurer.

Mr. Snoddy, who made original motion, spoke in interest of defeating the motion, citing reasons why the constitution should not be tampered with, and moved that the proposed amendment be not accepted. Mr. Condon seconded the motion, which carried unanimously.

Current bills of offices of President totaling $12.56 and of Secretary totaling $41.74 for postage, stationery, clerical help, etc., were presented and ordered paid upon motion by Mr. Snoddy, seconded by Mr. Peterson, which carried.

Mr. Snoddy moved that bills incident to this annual summer meeting and banquet be authorized paid, Mr. Morton seconded the motion, which carried.

Mr. Snoddy referred to the need for more information on Fresh Egg Law enforcement methods based upon experience in other states, and moved that the Council endorse a proposed trip by Mr. Downey to Connecticut and other nearby states in the interest of effective enforcement methods. Mr. Betts seconded the motion, which carried.

Mrs. Hopkins moved and Mr. Snoddy seconded that the State Poultry Council take steps to secure the appointment by the Governor of a poultryman to the Board of Regents of the University and the Maryland State Fair Board. Motion carried.

Report of Resolutions Committee, Mrs. W. W. Hopkins, Chairman
Resolutions Passed by Maryland State Poultry Council

Elkton, Md.—July 31, 1940

1. Be it resolved that the Maryland State Poultry Council express its appreciation to the Maryland State Farm Bureau for the Farm Bureau's interest and sympathy in the legislative program of the Poultry Council and hereby express the hope that the Farm Bureau will support to the fullest extent possible, the request made of the Council by poultry producers in order that some of the enormous losses to producers may be reduced and poultry production made more efficient.

2. Be it resolved that the Maryland State Poultry Council extend to John Clark its sincere appreciation for his efforts to aid the poultry industry of Maryland in meeting the various problems confronting it.

3. Be it resolved that the Maryland State Poultry Council hereby extends to the Maryland State Fair Board its thanks for grants of money made available for 4-H poultry judging work and for prizes in judging poultry at the Poultry Improvement Schools to be held throughout the State this year.

4. Be it resolved that the Maryland State Poultry Council hereby express its appreciation to the Cecil County Poultry Association, the Cecil County Board of Education, County Agent J. Z. Miller, Southern States Cooperatives, G. A. Allender, Elkton Supply Co., Geo. W. Biles Co., and others for their fine contributions of hospitality extended the Council in connection with the holding of this annual meeting.

RESOLUTIONS COMMITTEE,

MRS. W. W. HOPKINS, *Chairman.*
DR. M. A. JULL,
J. W. SNODDY.

The above resolutions were adopted as read upon motion by Mrs Hopkins, seconded by Mr. Snoddy, which carried.

Meeting adjourned at 5:30 P. M.

Seventh Annual Winter Meeting

OF THE

Maryland State Poultry Council

January 15, 1941

Lord Baltimore Hotel

Baltimore, Maryland

President Harry H. Rieck called the meeting to order at 9:30 A. M. and introduced the subjects for discussion and the speakers, as follows:

GIZZARD EROSIONS, THEIR PREVALENCE AND SIGNIFICANCE

PROFESSOR A. E. TEPPER, Poultry Department,
University of New Hampshire, Durham, N. H.

Practical poultrymen, as well as poultry research workers, have for several years been working and worrying about problems connected with the appearance of gizzard lesions in chickens. I believe, as early as 1929, Dam, a Scandinavian investigator, first reported the presence of lesions in the chick gizzard. Since that time a lot of work has been performed by various research investigators as to the probable cause of the condition.

Arizona workers in 1932 reported the isolation of an infectious fungus from chicks affected with ulcerated gizzards. Wisconsin investigators have implied that grit or hard grains seem to assist in the maintenance

of a tough and normal gizzard lining. They have also suggested various food products which are reputed to have some protective powers against the formation of gizzard lesions. California workers have also indicated various food products including alfalfa leaf meal, wheat bran, wheat middlings, oats, kale and green grass as being effective in the prevention and cure of gizzard lesions.

Workers at the Beltsville Research Station have indicated the gizzard ulcer to be caused by formation of a hemorrhage in the gizzard tissue, but as yet no one has found the true cause of this hemorrhage. In an attempt to relate it to a deficiency of the anti-hemorrhagic vitamin, Vitamin K, no success has been obtained.

Gizzard lesions have been reported as observed in chickens, pigeons and turkeys. I have personally noted their presence in both day-old pheasants and quail. You are all well aware of the fact that humans and various mammals suffer from ulcers of the stomach. Whether these are closely related to the condition as observed in the chicken's muscular stomach, the gizzard, still remains a problem.

In order to determine the relation of gizzard lesions in the day-old chick to subsequent growth, livability and efficiency of feed utilization, over 700 day-old chicks were raised at the University of Maryland and the final results of these tests are shown in Tables I-B and I-C.

TABLE I-B

Relation of Severity of Gizzard Lesions in Crossbred Chicks to Subsequent Growth Rate

Group No.	Ave. Gizzard Score (1 day old)	Ave. Weight at 12 Weeks (gms.)			Feed Efficiency Factor
		Males	Females	Both	
3a	2.8	1435.5	1132.2	1283.8	3.77
2a	2.5	1380.0	1177.0	1278.5	3.80
5a	2.2	1466.2	1208.5	1337.3	3.52
10a	1.9	1572.5	1244.6	1408.5	3.40
5b	1.7	1301.6	970.0	1130.8	3.73
2b	1.5	1492.1	1259.3	1375.7	3.49
1b	1.4	1658.8	1337.5	1498.1	3.37
12b	1.4	1497.5	1244.6	1371.0	3.86
10b	1.3	1293.3	1104.6	1198.9	3.98
3b	1.2	1571.9	1372.5	1472.2	3.49
9b	1.2	1385.0	1174.7	1279.8	3.79
Average	1.7	1459.5	1202.3	1330.4	3.65

TABLE I-C

Relation of Severity of Gizzard Lesions in Barred Plymouth Rock Chicks to Subsequent Growth Rate

Group No.	Ave. Gizzard Score (1 day old)	Ave. Weight at 12 Weeks (gms.)			Feed Efficiency Factor
		Males	Females	Both	
7a	2.7	1489.5	1233.5	1361.5	3.50
4b	2.4	1206.6	1042.3	1124.4	3.76
9a	2.2	1402.5	1187.6	1295.0	3.65
4a	2.1	1243.0	1131.0	1187.0	4.93
7b	2.0	1125.5	923.6	1024.5	4.08
8b	1.9	1161.2	935.7	1048.4	4.23
11a	1.9	1211.4	1122.3	1166.8	3.97
6b	1.7	1268.6	1148.6	1208.6	3.97
11b	0.3	1214.2	963.5	1088.8	3.90
Average	1.9	1258.0	1076.4	1167.2	3.99

In the eleven groups of crossbred chicks, as of Table I-B, all made good growth up to 12 weeks of age regardless of the severity of gizzard lesions in these chicks at hatching time. They were fed the Maryland Station mash and managed under electric brooders. A mortality of slightly more than 2 per cent was experienced on these birds over the 12-week period. Table I-C presents similar data on Barred Plymouth Rocks. It will be noted that the lightest weight groups (5b) and (7b) in both tables as underlined did not have the most severe gizzard lesions. They were both approximately at an average figure. Neither were these the least efficient in pounds of feed required to produce a pound of gain. Further details of these tables indicate quite conclusively that, there is no significant relationship between the incidence of gizzard lesions in day old chicks and subsequent growth, livability and efficiency of feed utilization of these chicks to 12 weeks of age, when they are under a good feed and management program.

Often we hear people say that gizzard erosions are the cause of high mortality in chicks. I do not believe this to be generally true. Chicks may have a high gizzard score as day-olds and if properly fed and managed will give a good account of themselves in future brooding operations. Undoubtedly, some other complicating factor is the cause of high mortality among such chicks. It is not the mere presence of a gizzard lesion.

Furthermore, an average of some 75 per cent of the day-old chicks which you start under your brooders probably have gizzard lesions of some type. This has been observed by us in analyses of well over 2,000 day-old chicks from various States and from various breeds. No lot of chicks examined to date has been found free from this disease.

Table 2 indicates a considerable range in "gizzard scores," both within specified breeds and between various hatchery sources. Table 3 presents a similar summary according to State of origin.

TABLE II

Gizzard Lesions as Observed in Day Old Chicks by Specified Broods

Breed	Number of Chicks Examined	Number of Hatcheries Represented	Range in Scores	Average Score Per Chick
Crossbreeds	280	10	1.2 - 2.8	1.56
Barred Plymouth Rocks	357	15	0.2 - 2.7	1.88
New Hampshires	138	5	1.5 - 3.0	1.98
Rhode Island Reds	64	2	1.9 - 2.2	2.05
W. Plymouth Rocks	120	3	0.8 - 3.9	2.34
S. C. W. Leghorns	623	21	1.3 - 4.6	2.49
Mixed	155	6	1.9 - 4.4	2.93
Total	1737	62	0.2 - 4.6	

TABLE III

Gizzard Lesions as Observed in Day Old Chicks by Specified States

State	No. of Chicks Examined	Average Score per Chick
Kansas	20	4.4
Michigan	150	3.5
Missouri	125	3.1
Iowa	73	2.7
South Carolina	71	2.3
Washington	299	2.1
Utah	85	2.1
New Hampshire	160	1.9
Maryland	452	1.9
Indiana	201	1.8
Alabama	78	1.7
Texas	23	1.6
	1737	2.4

FIG. 1. *Method of Scoring Gizzard Lesions.*

Condition	Score
Normal	0
Slight Hemorrhage (1-2 small areas)	1
Severe Hemorrhage (More than 2 small areas)	3
Slight Erosion (1-2 small crater lesions)	2
Definite Erosion (Few small or 1 large crater lesions)	4
Severe Erosion (Many small or large areas of lesions)	5

In so far as treatment is concerned, I would recommend nothing but good feed and good management. A normally well compounded ration cannot help but contain several of the feeds previously mentioned as having protective powers.

The use of copper sulphate as dry crystals mixed in the mash or as a solution for use in the drinking water apparently does little good and may cause some harm. Definite comparative tests using the Maryland Station mash with and without the supplement of copper sulphate treatment have proved to us that its use is not worthwhile.

In summation, may I say that it is our belief, if you use a good ration and practice sound, clean management, your chicks should not be adversely affected by gizzard lesions.

HOW HATCHERYMEN CAN SOLVE THE SEXING PROBLEM

T. C. BYERLY, Professor of Poultry Husbandry,
University of Maryland.

Since chick sexing began in the Pacific Northwest in 1933, it has grown very rapidly. In 1938, according to U. S. Department of Agriculture figures 26.2 percent of all hatcheries in the United States sold some sex-separated chicks. Only 5.6 percent of hatcheries in the South Atlantic region sold such chicks, while 63.5 percent of Pacific Coast hatcheries did so. Two Maryland hatcheries reported selling sexed chicks that year. Many hatcherymen are offering sexed chicks this year for the first time.

The sale of sexed chicks presents some problems which may be solved by the large hatchery operators in one way, and by the small operator in another way. First, who shall do the sexing? The large operator may hire a skilled sexor as a permanent employee or may contract with one of the several custom sexing services at a modest fee per chick. The smaller hatchery operators may learn to sex their own chicks. They may refuse to sell sexed chicks. They may employ a custom sexor occasionally at a higher fee per chick for small lots of chicks than for large lots, or they may adopt a breeding program which will enable them to recognize sex by growth of the primary wing feathers at hatching time or by down color. If the hatchery operator decides to learn to sex chicks, he may attend one of several schools at a cost of one to six weeks time and $100 or more in money. Attendance at such a school does not guarantee sufficient skill to do commercial sexing. Some people learn the art much more readily than others.

If the hatchery operator undertakes a breeding program as a solution, then for White Leghorns he must carry two strains. One of these must be pure for slow growth of primary wing feathers, the other for rapid growth of these feathers. By mating males of the rapid growing primary feather strain with females of the slow growing primary feather strain, the sexes may be separated at hatching time with a high degree

of accuracy. The females will have primaries of considerable length at hatching time, while those of the males will be very small. One Illinois hatcheryman has used this system quite successfully. He has also developed slow and rapid primary feather growth strains in several of the heavy breeds.

Properly selected strains of Barred Plymouth Rocks and Rhode Island Reds may be sexed by down color. The male Barred Rock chick has lighter shanks, lighter down, and a more diffuse and usually larger white head spot than the female. In Rhode Island Reds, chicks showing black spots on the back of the head are usually females. Most strains of Rhode Island Reds produce many chicks without any black down in either sex so that this means of separating chicks is limited to the development of strains genetically uniform for this character.

Having settled the questions as to who shall sex the chicks and how they are to be sexed, the hatcheryman is next faced with the problem of what to do with Leghorn males. He may be troubled also with either surplus males or females of the heavy breeds. The usual answer is to drop the price of the surplus sex sufficiently to sell them. If the price they will bring is too little to cover cost of handling, the chicks are destroyed. Over 30 percent of the Pacific Coast hatcheries reported that they destroyed some cockerel chicks in 1938.

The practice of destroying male Leghorns seems to me unsound. These chicks utilize feed quite efficiently up to a weight of two and one-half pounds. However, when the market pays a lower price per pound for the finished Leghorn broiler than for the heavy breeds, the broiler producer cannot afford to accept Leghorns as a gift.

Unscrupulous hatcherymen place a few cockerels in each hundred supposedly straight run chicks or simply sell them to jobbers or dealers as straight run chicks at a low price. The ultimate customer loses by this practice, which is so widespread that some people will not buy chicks from a hatchery which offers sex-separated chicks for sale.

Another, and legitimate, practice is to separate the sexes for the customer but to insist that he take the males as well as the females at the price of straight run chicks plus a fee for the sexing service.

FERTILITY AND HATCHABILITY OF TURKEYS

PROFESSOR P. H. MARGOLF, Poultry Dept., Pennsylvania State College, State College, Pa.

As the intelligent use of trapnests has aided the poultry industry to advance rapidly in improving strains of chickens, there is much need for their use in the improvement of strains of turkeys. This, and other related factors in flock improvement and management practices, to insure good fertility and hatchability, need our consideration.

First, to secure good hatchability, there must be an inheritance of vigor and vitality in the flock. Selection of the breeders to be used cannot be over-emphasized. The presence of external and internal parasites will do much to weaken the flock physically.

Second, suitable environmental conditions are necessary under which the flock is to be housed. Consideration should also be given the following: (1) the use of too many or too few males in the breeding pen, (2) males spending time fighting on opposite sides of a fence in the breeding yards. Empty feed bags hung on the fence to prevent the males from seeing each other, or using two lines of fence separated at least five or six feet apart, between the pens, will remedy this condition.

Third, clean, wholesome feed with the nutrients qualitatively and quantitatively balanced are indispensable and remember, water is an essential nutrient.

Other phases to consider are the care of hatching eggs and efficient operation of the machine. An ideal temperature for the storage of hatching eggs is 55° F. They should be packed in egg cases using duck fillers with the small end of the egg down and the case tilted to an agle of 45 degrees and turned end for end once each day. For best results, set the eggs once each week, but they may be held for a two-weeks period with good results.

Broken and dirty eggs are a constant problem in the production of hatching eggs. These items may well be eliminated when trapnests are used. One breeder of turkeys, with over 800 hens, had trouble with crows entering open nests and destroying many hatching eggs. In his case, the use of trapnests more than paid for themselves the first month, as it eliminated the loss of eggs from this source.

Certainly, hens showing the poorest hatchability may be segregated from the flock when eggs are marked at the time of trapnesting and their identity carried through the incubation period.

Early hatched poults are increasing in the Northeast and the result is more mature feathering on turkeys for the early season markets. Recent studies with turkeys under illumination and in confinement have revealed many interesting characteristics of turkeys.

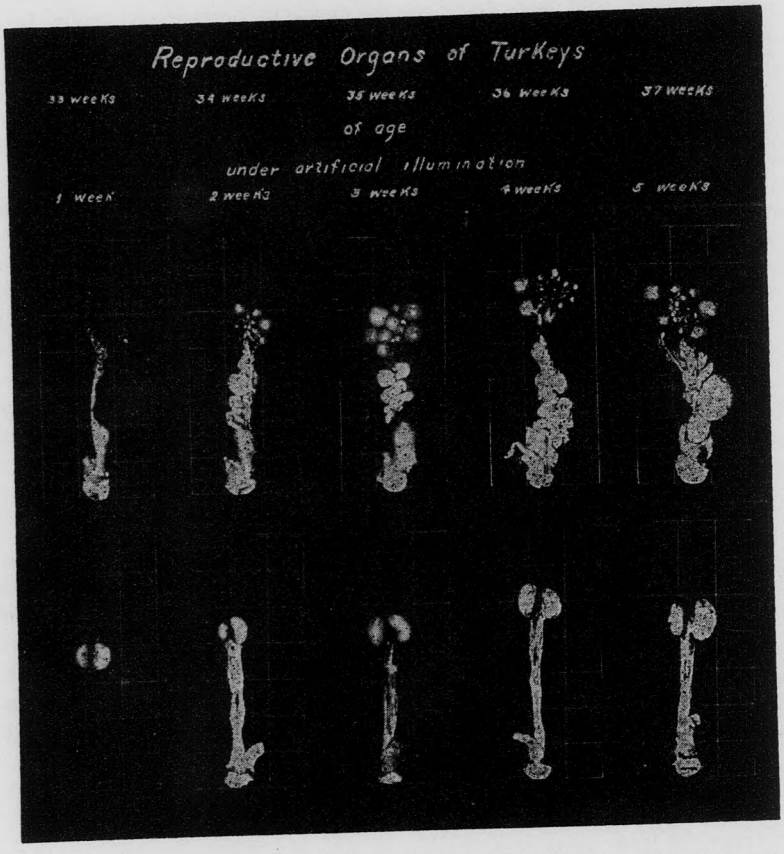
The Effect of Lights on the Fecundity of Turkeys

Attempts have been made on our college farm to secure poults from breeders exposed to early morning lights during the winter months. The egg production realized from these trials was pleasing, but the amount of infertility was appalling.

In planning the work for 1939-1940, we assumed that the reproductive organs of the female develop more rapidly in response to lights than do those of the male. Eggs are, therefore, laid by the hens before the toms have developed sufficiently to fertilize the eggs.

Accordingly, on December 14, 1939, 10 female and 10 male turkeys, 32 weeks of age, were housed in a pen 12'x20' and put under lights. The pen was provided with one 60-watt incandescent bulb with no reflector. Light was given the birds daily from 4:00 A. M. until daylight.

At the time the first group was housed, one male and one female of the same age and breed were killed, their reproductive organs removed,



and examined for the stage of development attained. At weekly intervals, thereafter, two hens and two toms were killed from the group placed under lights and a similar examination was made. At weekly intervals, two turkeys of each sex were killed until all of the original 20 birds were examined.

The hens examined at the end of the 3rd, 4th and 5th weeks, were all found to be laying. The testes of the toms killed each week were exam-

ined for the presence of motile sperm, by Dr. W. T. S. Thorpe of the Veterinary Science Division of the Department of Animal Husbandry, The Pennsylvania State College. An extraction was made from each testis by the use of an hypodermic needle syringe. Smears of the contents were made on slides and examined under the microscope. Sperm were reported in the left testis from males killed at the end of the 3rd week, but they were not motile. Of the group of toms killed on the 4th week, one showed motile sperm, not only in the testis, but in the vas deferens as well. The other male showed no motile sperm in the vas deferens, but motile sperm were found in the testes. Both of the males remaining at the end of the 5th week were in a high state of production of motile sperm. Apparently, young toms require from four to five weeks under lights before they are properly developed sexually.

The birds used the 5th week were compared with one turkey of each sex housed, but not subject to artificial lights. Scott and Payne (1936), presented evidence to show that what would be considered proper housing and protection exerts no influence on the sex cycle of the turkey.

Part II

When the group of 10 hens and toms were exposed to lights, four males, each of two different strains of White Hollands, were also placed under similar environmental conditions. For convenience, we will call them Strain I and Strain II. The males of Strain I were mated with 18 females of the same strain and the males of Strain II were mated with 20 hens of Strain II.

The hens, however, were not given lights until the toms had been exposed to lights for five weeks. Two sets of double pens were then used, one set for each strain of turkeys, the males using one pen and the females the other. All hens were blanketed with turkey saddles and the band number of each hen was printed on the saddle in a conspicuous place. Each male was also marked A, B, C, or D, respectively.

When the hens had been exposed to lights 4 days, each tom was individually given access to the pen of hens daily. The toms were also used in a regular routine order each day. Tom A would be used first on one day, second on the next, third the next day, etc. Some toms mated as many as three hens each day.

All hens were trapnested, the eggs marked, and fertility and hatchability data were collected. All birds in Strain I reached sexual maturity at 278 to 286 days. This period of time included 17 to 25 days under lights, an average of 20.11 days. Those in Strain II responded in 275 to 291 days with from 14 to 30 days of this time forced under lights, the average 19.75 days to bring them into sexual maturity. Hens exposed to lights but three weeks, attained a high state of production.

Figure 2 illustrates the number of matings made, expressed in percent and is shown with the percent of egg production. There was a marked

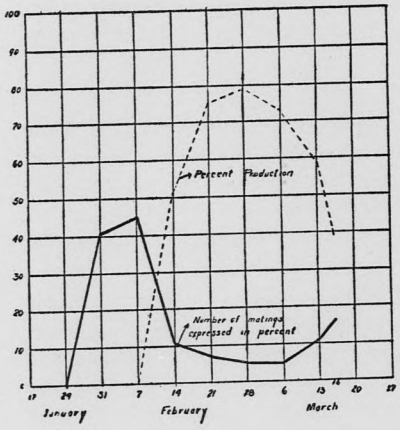
reduction in the mating activity as the flock came into egg production. When production was the highest, hens showed the least aggressiveness in mating. It is the hen which makes the advance when turkeys mate.

A marked difference was noted in the percentage of matings occurring in Strain II compared with Strain I. The hens in Strain II showed much aggressiveness during the period prior to laying, but the males were very sluggish and awkward in action.

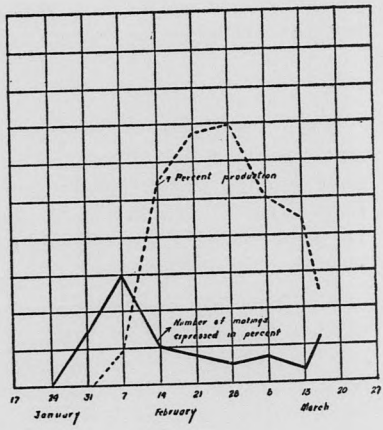
During the period of the day when the males were given access to the pen of hens, the trapnests were emptied of all birds. When a hen

THE RELATION OF THE EGG PRODUCTION CYCLE TO THE PERCENTAGE OF MATINGS

STRAIN I



STRAIN II



showed broodiness, she was removed from the pen and placed in a large wire-bottom holding crate. This crate was kept in the pen with the toms. Once each day, the broody hens were released from the crate and allowed to mingle with the toms. When any one of the hens showed aggressiveness and was mated, she was put back in the laying pen.

Several birds went through their first broody period during the last week the birds were under lights. In this period, production declined and the percentage of matings increased. It appears that at the end of the hen's broody period aggressiveness toward mating is again revived.

All eggs were tested on the 24th day of incubation. Eggs removed as infertile or dead germs by candling were broken open and examined, and embryos showing no development were classed as infertile.

In Strain I the poorest fertility came from the hen which was mated the greatest number of times prior to laying. Anywhere from 2 to 15

FIGURE 3

The number of matings made by each hen during the period prior to laying her first egg and the percent of fertile eggs for the entire period.

Number of Matings											
0	1	2	3	4	5	6	7	8	9	10	11
					Strain I						
.....	.....	.....	100	88.0	100	100	100	100	95.2	.....	75.8
.....	.....	.....	.....	.....	100	85.1	95.6	95.6	.....	.....	.....
.....	.....	.....	.....	.....	100	.....	94.4	.....	.....	.....	.....
.....	.....	.....	.....	.....	87.5	.....	91.6	.....	.....	.....	.....
.....	.....	.....	.....	.....	76.5	.....	82.3	.....	.....	.....	.....
Averages:											
.....	.....	.....	100	88.0	92.8	92.5	92.8	97.8	95.2	.....	75.8
					Strain II						
50.0	100	95.4	100	100	84.2	100	100	.....	.....	.....	.....
.....	66.7	83.3	100	92.8	73.9	.....	82.3	.....	.....	.....	.....
.....	.....	66.6	96	12.5	3.8	.....	.....	.....	.....	.....	.....
.....	.....	61.1	73.9	.....	.....	.....	.....	.....	.....	.....	.....
Averages:											
50.0	83.5	76.6	92.5	68.4	54.0	100	91.1	.....	.....	.....	.....

matings gave 100 percent fertility for the entire 39 days of egg production (Figure 4).

FIGURE 4

The number of matings made by each hen and the percent of fertile eggs for the entire period.

Number of Matings						
2–3	4–5	6–7	8–9	10–11	12–13	14–15
			Strain I			
.....	100	100	100	100	95.6	100
.....	88.0	100	100	95.6	.....	95.2
.....	.....	85.1	91.6	94.4	.....	75.8
.....	.....	.....	87.5	82.3	.....	.....
.....	.....	.....	.....	76.4	.....	.....
Averages:						
.....	94.0	95.0	94.8	89.7	95.6	93.7
			Strain II			
100	73.9	92.8	100	3.8	100	.....
100	61.1	84.2	100	.....	.....	.....
100	.....	73.9	96.0	.....	.....	.....
95.4	.....	.....	82.3	.....	.....	.....
83.2	.....	.....	12.5	.....	.....	.....
66.7	.....	.....	.....	.....	.....	.....
66.3	.....	.....	.....	.....	.....	.....
50.0	.....	.....	.....	.....	.....	.....
Averages:						
82.7	67.5	83.6	78.2	3.8	100	.....

One hen in Strain II did not mate, but showed aggressiveness toward the males to mating for a period of 6 days prior to laying. This hen laid 12 eggs before making further advances toward the male. Later, at the completion of the broody period, she was mated twice. Two hens which gave the least number of fertile eggs, namely 3.8 and 12.5 percent, laid misshapen eggs and may suggest some other physiological disturbance.

Figure 5 illustrates the number of matings made by each male during the entire period with the individual hens. In Strain I, under male C there were three hens with which the male failed to mate. This may be partially explained in that male C was removed from the mating pen on the 7th of February and, therefore, was in contact with the hens for the first 14 days only compared to 52 days for the other males.

FIGURE 5

The number of matings made by each male during the entire period with individual hens.

Strain I					Strain II				
Hen	Males				Hen	Males			
No.	A	B	C	D	No.	A	B	C	D
180	2	3	3	0	1	1	2	0	0
181	3	3	2	6	6	3	2	0	1
182	4	3	2	6	14	5	3	0	3
183	3	4	0	3	15	2	0	0	0
184	2	3	1	1	17	3	1	.....	0
185	2	4	1	3	20	4	0	.....	0
186	1	4	1	1	21	3	5	.....	0
187	3	3	1	1	23	1	1	.....	0
188	1	1	0	3	25	2	0	0	1
189	2	4	1	3	27	3	3	0	0
190	5	5	1	1	29	1	1	.....	1
191	3	0	4	7	30	4	1	.....	4
193	4	1	1	3	31	4	2	.....	0
194	3	3	0	4	33	1	2	.....	0
195	2	2	1	2	37	6	0	.....	2
197	1	0	1	3	38	7	3	.....	2
199	4	2	2	1	40	7	1	.....	1
NN	2	4	1	3	43	0	1	.....	1
					57	2	1	.....	0
					64	5	3	.....	0
Totals	47	49	23	51	Totals	64	32	.....	16

FIGURE 6

Hatchability Data

Date Set	No. of Eggs Set	Fertile Eggs	Dead Germs	Pipped	Killed	Poults	
						All Eggs	Fertile Eggs
		per cent	per cent	per cent	per cent	per cent	per cent
			Strain I				
	140	88.6	16.4	2.9	2.8	66.4	75.0
	131	95.4	22.1	2.6	1.5	64.1	67.2
	79	96.2	13.9	13.9	2.5	65.8	68.4
	73	98.6	16.4	9.6	2.7	69.8	70.8
Totals	423	93.9	17.7	7.6	2.4	66.2	70.5
			Strain II				
	159	67.9	13.8	12.6	0.0	41.5	61.1
	118	87.3	30.4	10.1	0.0	45.7	52.4
	59	84.8	40.6	8.5	0.0	35.6	42.0
	67	77.6	29.9	22.4	0.0	19.4	25.0
Totals	403	77.6	25.3	12.9	0.0	38.2	49.2

In Strain II, male C became injured and was not used, male B died on February 13th. The D male was very inactive, making only 6 matings before the hens started to lay.

Summary

1. When egg production is forced by the use of artificial lights, evidence is presented showing that aggressiveness or willingness to mate is greatest prior to laying and decreases as the birds continue to lay.

2. From our results, it appears that young breeder toms should be given 4 weeks of additional lights prior to lighting the hens with which they are to be mated.

3. Aggressiveness or willingness to mate is increased at the completion of the pause in production because of broodiness.

4. It is suggested that there is little evidence of preferential mating when turkeys are placed under artificial lights and individual males are alternated.

5. Figure 5 shows the fertility and hatchability data assembled for the period in which the birds were observed.

Meeting recessed at 12:20 P. M. for luncheon.

Reconvened at 1:30 P. M.

PROGRESS ACHIEVED IN MARKETING EGGS AND POULTRY THROUGH AN AUCTION

Ray Riley, Manager, Westminster Egg and Poultry Auction, Westminster, Md.

As manager of the only Cooperative Auction in the State of Maryland, handling poultry products—that is eggs and live poultry, I have been able to observe much progress in the past two years and I am firmly convinced that the poultrymen of Maryland need to practice and develop the spirit of cooperation more in the years to come, if we hope to keep in step with our neighbor states in the Northeast. There is something very helpful just in the association and the contacts which one makes in working with a group of fellowmen that can never be determined in dollars and cents.

The Westminster Cooperative Poultry Products Auction, Inc., located in Westminster, Maryland, the county seat of Carroll County, is a non-profit cooperative organization. It was organized by the poultrymen and farmers and it is for their benefit and interest that it is operated. Poultrymen of Carroll, Frederick, Baltimore, Howard, and Anne Arundel counties are now members of this cooperative, which is headed to be one of largest of its kind. I am sure that you will agree that it is out of its infancy and is going to snow quite a large growth in the next few years.

The purpose of the Westminster Auction is to secure for the poultrymen of Maryland, some well organized channel through which they can satisfactorily market their poultry and eggs.

The worst of the depression passed by, but conditions for the poultrymen in the Westminster area showed little or no improvement. Many producers felt that the egg buyers and commission men could not or would not consistently pay what their products were worth. There was no question but what the poultrymen were getting the worst of it.

I think it is only right for you to know that it was a small group of men interested in the poultry industry who raised the capital and the invaluable assistance of the Poultry Department of the University of Maryland that this auction has been the success that it has been. It has enjoyed the substantial increase of about 2,500 cases of eggs over last year and a nice increase in the number of coops of poultry.

It was under these conditions that the people of Carroll County started a small organization which grew into a business of some $70,000 the first year and with two more months before its second anniversary it seems destined to do over $100,000 worth of business its second year. This may seem like quite a large sum of money and the part that I am glad to report is that up to December 31, 1940, of the total business of the auction since it started amounting to $141,000 approximately $131,000 has been returned to the farmers of Maryland in cash.

I am not exaggerating to say that the Westminster Auction has been responsible for raising the price level of eggs in its section at least three cents per dozen. It has also been a great help in stabilizing the price of live poultry.

We have a reputation of being able to handle any quantity of products at a premium price. There is no concrete method of measuring the increased returns which the farmers have received, as they depend largely upon the season of the year and quality of the product. It is never any trouble to sell a quality product at a premium price.

The premium price a producer receives for his eggs depends largely upon quality and cleanliness. The Westminster Auction has a slogan that it is an "Egg Market Where Quality Pays." The largest task we have had has been educating people just what a clean egg or just what a quality egg is. We have often received the report that John Jones has tried the Auction but has not received a better price or maybe a price not as good as his former market. When we go back we often find that this man has not cleaned his eggs; perhaps he gathers once a day, or if he is busy, perhaps he misses a day; after he gathers his eggs he places them in the case while they are still warm; if he has a mixed flock he more than likely mixes his white and brown eggs together with eggs ranging from 20 to 30 ounces to the dozen all in his case. It has been this man who has been trying to get something for as little effort as possible that his auction has not been able to do a lot for, but

if this man will care for his eggs, gather often, cool as quickly as possible before casing and just follow the simple rules of handling eggs that all you poultrymen should know, he will know that he has an egg that will bring him a very nice price and it does not cost him any more feed or a bit more cost than the case that he produced the week before that were not of good quality.

It is only reasonable to believe that your auction can be only as progressive and can only go to the heights that its producer owners will have it go. No matter how hard an auction works or how much stress we place on quality, it is still necessary for you poultrymen to have pride in producing a quality egg, a clean egg, and an egg that a buyer will ask for time and time again.

All eggs that leave the Westminster Auction have a large label pasted on the end of the case. At the top of this label is the name Maryland Quality Eggs, with the map of the state of Maryland in the center of the label and the name and address of your auction on the bottom. I received the word that some of our large egg buyers in New York City were scratching our labels off the cases because Maryland has had in the years gone by a reputation of producing eggs that were not of high quality. These buyers knew that the eggs which they bought from the Westminster Auction were quality eggs and they were buying these eggs at a premium price but they were having difficulty reselling those eggs because a long time ago Maryland eggs were shipped to New York and the quality was not too good.

I think this is a condition which we should remedy. There is no reason whatsoever that Maryland eggs should not be in demand instead of eggs that the buyers have to doubt as to what they are getting.

In our short period of operation I think and hope that we have shown the people of Maryland that we are sincerely working to establish by growing slowly but solidly and soundly an auction that will be one of the best in the country. There is no reason why we can not. We have four large cities within overnight distance from Westminster—New York, Philadelphia, Washington and Baltimore. This gives a wide selection of buyers. We have the markets, we have the buyers, we have the facilities to handle your products, and all we ask of you is your whole-hearted support, and the determination that Maryland eggs and poultry are second to none.

President Rieck reported briefly on the program of the Northeastern Poultry Producers Council, enumerating several projects of special concern to Maryland poultrymen. The fine Poultry Terminal Project alone would mean the saving of thousands of dollars annually to Maryland poultry producers.

Business Session

President Rieck pointed out that due to the lateness of the hour, it was necessary to cover the business and election of officers with as much dispatch as possible.

Report of Officers—Read by Secretary

Since the Summer Meeting of the Council in Elkton on July 31, there has been no meeting of the Directors. However, a number of matters have been disposed of by executive action and a number of projects show commendable progress.

Food Show Exhibit: Through the efforts of John Clark, of the State Fair Board, an allocation of $700 was made to stage a consumers' exhibit at the Baltimore Food Show, held in the 5th Regiment Armory, October 30 through November 3. This exhibit was under the direction of Professor James M. Gwin, of the University Poultry Department, and featured "Sho-Nuf Genuine" Maryland turkeys, Maryland broilers and fresh Maryland eggs. Special incubators in which hatching chicks were displayed attracted great attention and were the real sensation of the whole show. At least 20,000 consumers were contacted through these exhibits and thousands of pieces of literature were distributed.

The Maryland Turkey Producers Association, with Mrs. A. W. Sattler, Arthur Nelson, Warren D. Johnson and A. W. Hawkins, assisted Professor Gwin, your Secretary, L. E. Downey, Norman Paulhus and others in manning the exhibit.

There can be no question that this exhibit made many Baltimore consumers more conscious of the advantages of fresh Maryland poultry products.

1941 Poultry Products Show: Although the Baltimore Food Show exhibit was suggested by some to be substituted for the Council's Annual Poultry Products Show, the Directors voted at their last meeting in Annapolis in the summer to hold a small but high quality egg and chick show in 1941.

The present show is nearly equal in number of entries to the 1940 show and the average scores of both egg and chick entries are higher than last year.

To reduce the task of judging eggs, individual egg weighing was eliminated this year, and this has greatly facilitated the judging work, which, as many of you know, is a tremendous task of details. Also, decorations were eliminated this year in a further effort to reduce the work connected with the show. This situation has largely arisen because of the shortage of secretarial help available from the University and the Council's means of providing same.

The immense amount of detailed work involved in these shows requires that some adjustments be made to reduce same or provision of additional help to handle the large volume of work falling in such a short period of time.

Legislation: Your President has been in contact with Dr. H. C. Byrd, Governor O'Conor and other officials relative to the University budget to provide needs for the Poultry Department at the University by which our Council expects to better cooperate with the Poultry Department in serving our industry.

Additional travel money, more secretarial help, and funds for supplies, maintenance, etc., are sorely needed by the Department at College Park. Anything which can be done by the Council to get increases by the Governor and the Legislature for these and other needed items will be of direct benefit to the industry. Your President and John Clark, chairman of our Legislative Committee, who is chairman of the House Agriculture Committee, are on the job to help get these increases, as well as support the entire University program.

N. E. P. P. Co. Activities: More than 40 Maryland poultrymen attended the Maryland Breakfast, on October 3rd, at Hotel Morton, Atlantic City, during the Fifth N. E. P. P. Co. Exposition.

Maryland producers and breeders won many honors in the Egg, Turkey and Sample Flock sections of the Exposition.

Combining N. E. P. P. Co. and Northeastern Association of Poultry Cooperatives at Atlantic City now requires in addition to one Director, two voting delegates from cooperatives in the State and two delegates from other poultry groups to N. E. P. P. Co. for 1941.

Establishment of the New York Live Poultry Terminal, a major project of N. E. P. P. Co., which is expected to be a reality in the summer of 1941, will be a boon to the broiler and turkey producers of Maryland in eliminating much of the unjust fees, charges, etc., which is a racket in the New York Live Poultry Market. Reduction of these costs will benefit both producers and consumers.

National legislation, the emergency of the Defense Program and other matters face us in which N. E. P. P. Co. can be of distinct aid to Maryland Poultrymen and our Council must actively support the entire N. E. P. P. Co. program.

Consumption Work: Interest in developing consumption campaigns is growing in Maryland and Egg Window Displays, Food Show Exhibits, Egg Drives and other activities should be only a prelude to a well organized program in Maryland in cooperation with the Poultry and Egg National Board, as outlined today by Homer Huntington. Maryland poultrymen have a real stake in such programs and we must carry out such work effectively in Maryland for real progress.

Treasurer Cowan read his yearly report. The Auditing Committee, Robert C. Street, Chairman, reported that it had found the Treasurer's reports correct. It was moved and seconded that the report be accepted. Motion carried.

Mr. Peterson made a motion that Treasurer Cowan be paid his account of $9.60 for office expenses. It was seconded by Mr. Cowan. Motion carried.

President Rieck announced request of Farm Bureau Resolutions Committee for early submission of Resolution for action by their committee, and that in order to comply with this request, resolutions would be submitted now.

Mrs. Hopkins reported for the Resolution Committee. She made motions for adoption of the following resolutions:

Resolutions of the Maryland State Poultry Council, January 15, 1941

RESOLUTION I

Whereas, Section 147 of Article 48 of the Annotated Code of Maryland exempts railroad and express cars from the requirement to bear two special license plates, and

Whereas, it was our intent to have this exemption apply also to authorized public carriers on the highways

Be It Resolved, That the Maryland State Poultry Council recommends that the General Assembly amend said section No. 147, by inserting after the words "except railroad and express cars" the words "and those of any public carrier operating under certificate or permit of the Public Service Commission or the Interstate Commerce Commission."

Seconded by R. C. Street—Motion for adoption carried.

RESOLUTION II

Whereas, the Maryland State Poultry Council is keenly disappointed in the recent biennium state appropriations proposed to improve conditions in the poultry industry of the state,

Be It Resolved, That a committee be appointed to interview Governor O'Conor to urge increases for assistance to help solve a number of pressing problems facing the poultry industry.

Seconded by Mr. Cowan—Motion for adoption carried.

RESOLUTION III

Resolved, That the Maryland Turkey Producers Association request Governor O'Conor to make available an appropriation of $1,800 for educational and marketing work with Maryland turkeys as originally requested by the Maryland State Poultry Council and the Maryland Farm Bureau Federation.

Seconded by Mr. Fuller—Motion for adoption carried.

RESOLUTION IV

Resolved, That the Maryland State Poultry Council hereby expresses its desire to endorse the program of the Poultry and Egg National Board and to cooperate with said Board in its consumer campaign.

Seconded by Mr. Spearin—Motion for adoption carried.

RESOLUTION V

Whereas, the campaign for increasing the consumption of eggs and poultry and to advertise to the consumer by radio, magazines, newspapers and circulars requires money the poultry producer should aid financially in this advertising campaign.

Be It Resolved, That an opportunity be given to each producer to

contribute (no matter how small a contribution) toward this advertising campaign through the Poultry and Egg National Board.

Seconded by Mr. Condon—Motion for adoption carried.

RESOLUTION VI

Whereas, there exists a popular feeling among Maryland agriculturists that the Board of Regents of the University of Maryland lacks adequate representation of the agricultural interests of the state,

And, whereas, the poultry industry is the second most important branch of Agriculture in the state,

Therefore Be It Resolved, That the Maryland State Poultry Council request the Maryland State Farm Bureau to include a representative of the poultry industry if and when more agricultural representatives to the Board of Regents are to be added to that body.

Seconded by Mr. Colona—Motion for adoption carried.

RESOLUTION VII

Be It Resolved, That the Maryland State Poultry Council hereby expresses its sincere appreciation for the wholehearted cooperation given by the poultry staff and the Extension Service of the University of Maryland.

Seconded by Mr. Condon—Motion for adoption carried.

ANNUAL BUSINESS MEETING

A report of the Credentials Committee by the Secretary as Chairman showed the following directors and delegates present:

TRI-COUNTY POULTRY ASSOCIATION

Director—Robert C. Street.
Delegates—L. L. Colona and W. A. Spearin.

PRINCE GEORGE'S COUNTY POULTRY ASSOCIATION

Director—J. W. Snoddy.
Delegate—Ora Overholser.
Alt. Delegate—J. Morgan Everett.

WESTMINSTER COOP. AUCTION

Director—Charles E. Ritter.
Delegates—Ray D. Riley and Charles F. Hines.

TALBOT COUNTY POULTRY ASSOCIATION

Director—Mrs. W. W. Hopkins.
Delegate—Ivon T. Worton.
Alt. Delegate—R. S. Brown.

CAROLINE COUNTY POULTRY ASSOCIATION

Director—Mildred R. Kern.
Delegates—H. H. Rieck and Perry Voshell.

DORCHESTER COUNTY POULTRY ASSOCIATION

Director—A. R. Peterson.
Delegate—Firnan Clifton, Jr.
Alt. Delegate—Walter Lankford.

CECIL COUNTY POULTRY ASSOCIATION

Director—A. D. Condon.
Delegates—J. A. Sten and Mrs. Ruth Holler.

HARFORD COUNTY POULTRY ASSOCIATION

Director—Mrs. J. Roy Enfield.
Delegates—C. M. Harrison and F. W. Fuller.

Fresh Egg Law Compliance: Mr. Coudon reported a case of evasion of the Maryland Fresh Egg Law where various priced eggs were displayed. The President requested authority to appoint a committee to study the matter and make recommendations. Mr. Sten moved that a committee be appointed. It was seconded by Mr. Coudon. Motion carried. Mr. Rieck appointed Mr. Snoddy as chairman with Mr. Coudon and Mr. Downey as members of the committee.

Revision of Standing Committees: Dr. Jull, as committee of one, appointed by the President, recommended the revision of the Council standing committees by reducing committees to two; namely, Resolutions Committee and Committee on Organization and Finance. The President recommended that committees of three to five members be appointed.

Election of Officers: The Chairman of the Nominating Committee, R. C. Street, reported the nominations by the committee as follows: Harry Rieck, President; Ora Overholser, First Vice-President; Walter A. Spearin, Second Vice-President; Mrs. W. W. Hopkins, Treasurer; and Wade Rice, Secretary.

There were no further nominations for President. It was moved by Mr. Morton and seconded by Mr. Fuller that nominations for President be closed. Motion was carried, unanimously. The Secretary cast the ballot for Mr. Rieck for President for the coming year.

Nominations for First Vice-President were asked from the floor by the President. Mr. Overholser nominated Mr. Snoddy. Mr. Brown moved that nominations be closed for First Vice-President. It was seconded by Mr. Voshell. Motion carried. Mr. Snoddy was elected as First Vice-President in the ensuing ballot.

Nominations for Second Vice-President were asked from the floor by the President. Mr. Morton moved the nominations be closed. Mrs. Hopkins seconded the motion. Motion carried. Walter A. Spearin was unanimously elected Second Vice-President.

The President asked for nominations for Treasurer from the floor. Mr. Coudon moved that nominations be closed. It was seconded by Mrs. Enfield and carried. The Secretary cast a ballot and Mrs. Hopkins was unanimously elected Treasurer.

As the Secretary is appointed by the Executive Committee his appointment was laid aside until a meeting of the Committee.

Representation to NEPPCO: The Nominating Committee on directors and voting delegates to NEPPCO nominated Mr. Rieck, director; Mr. Peterson, Mr. Snoddy, Mr. Hines, and Mr. Ritter, voting delegates. A motion was made that nominations for director to NEPPCO be closed. Motion carried and Secretary instructed to cast unanimous ballot for Mr. Rieck as director to NEPPCO. Mr. Peterson made a motion that the newly elected director assume office at the annual meeting of NEPPCO. It was seconded by Mrs. Hopkins. Motion carried. Mrs. Hopkins made a motion that nominations for voting delegates be closed. It was seconded by Mr. Colona. Motion carried.

Mr. Fuller moved that the Secretary cast a ballot for Mr. Peterson and Mr. Snoddy as voting delegates. It was seconded by Mr. Coudon and motion carried. Mr. Ritter and Mr. Street were elected by ballot for voting delegates. Nominations for alternates were made from the floor. The following were nominated: Mr. Coudon, Mrs. Sattler, Mrs. Kern, Mrs. Hopkins, Mr. Hines. Mr. Coudon moved that nominations be closed. It was seconded by Mrs. Peterson. Motion carried. In the ensuing ballot Mr. Coudon, Mrs. Sattler, Mrs. Hopkins and Mr. Hines were elected as alternates for delegates to NEPPCO.

Director to Farm Bureau: Mrs. Sattler moved that Mr. Rieck serve as director to the Farm Bureau. It was seconded by Mr. Fuller. Motion carried.

Delegates to Farm Bureau: Mr. Voshell, Mr. Peterson and Mrs. Kern were nominated as delegates to the Farm Bureau. Mr. Coudon moved and Mr. Fuller seconded the motion that nominations be closed. Motion carried. Mrs. Hopkins moved, Mr. Coudon seconded the motion that the Secretary cast a ballot unanimously for the above delegates.

Mr. Peterson moved and Mrs. Holler seconded the motion that the delegates appoint their own alternates to the Farm Bureau. Motion carried.

Vote of Thanks to Mr. Cowan: Mrs. Sattler made a motion that Mr. Cowan be given a vote of thanks for serving for six years as Treasurer of the Council. The Secretary recommended that a resolution be made to record this motion. Motion carried.

Whereas, Mr. John J. Cowan of Bowie, Md., has faithfully and punctually served the Maryland State Poultry Council as Treasurer since its organization in 1934, often with great personal inconvenience and sacrifice as well as expense, and

Whereas, Mr. Cowan now asks to be relieved of the duties of this office,

Be It Resolved, That the Maryland State Poultry Council hereby express

its deep appreciation for the faithful and exemplary service rendered it by Mr. Cowan as Treasurer in its efforts to serve the best interests of the poultry industry of Maryland.

Baltimore, Maryland, January 15, 1941.

Meeting adjourned at 6:15 P. M.

Meeting of Executive Committee: Appointment of Secretary: Mr. Spearin moved and Mrs. Hopkins seconded the motion from the nomination committee that Mr. Rice be again appointed Secretary for the coming year. Motion carried.

Adjourned 6:20 P. M.

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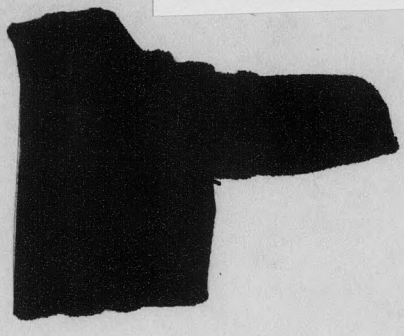

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